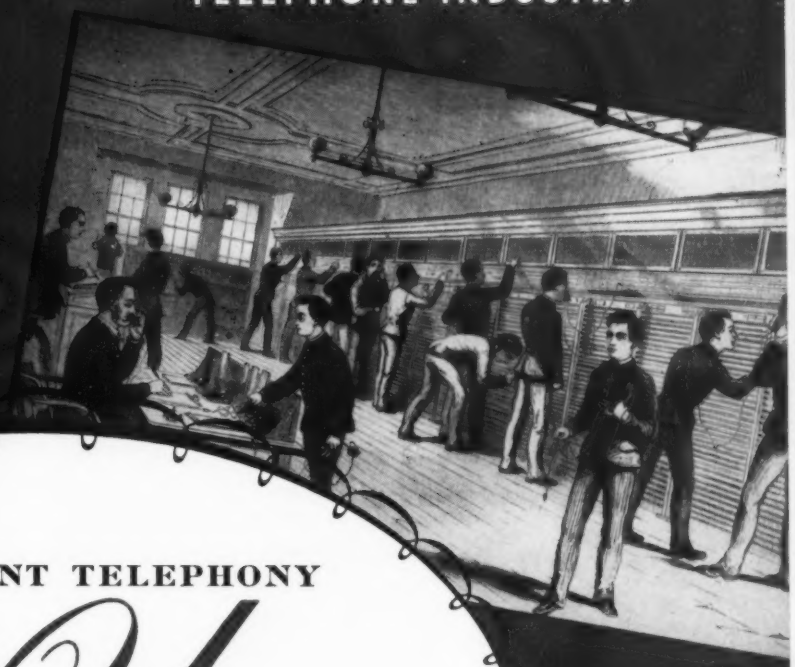
SEPTEMBER 26, 1957
VOL. 153—NO. 13

Telephony

THE JOURNAL OF THE TELEPHONE INDUSTRY



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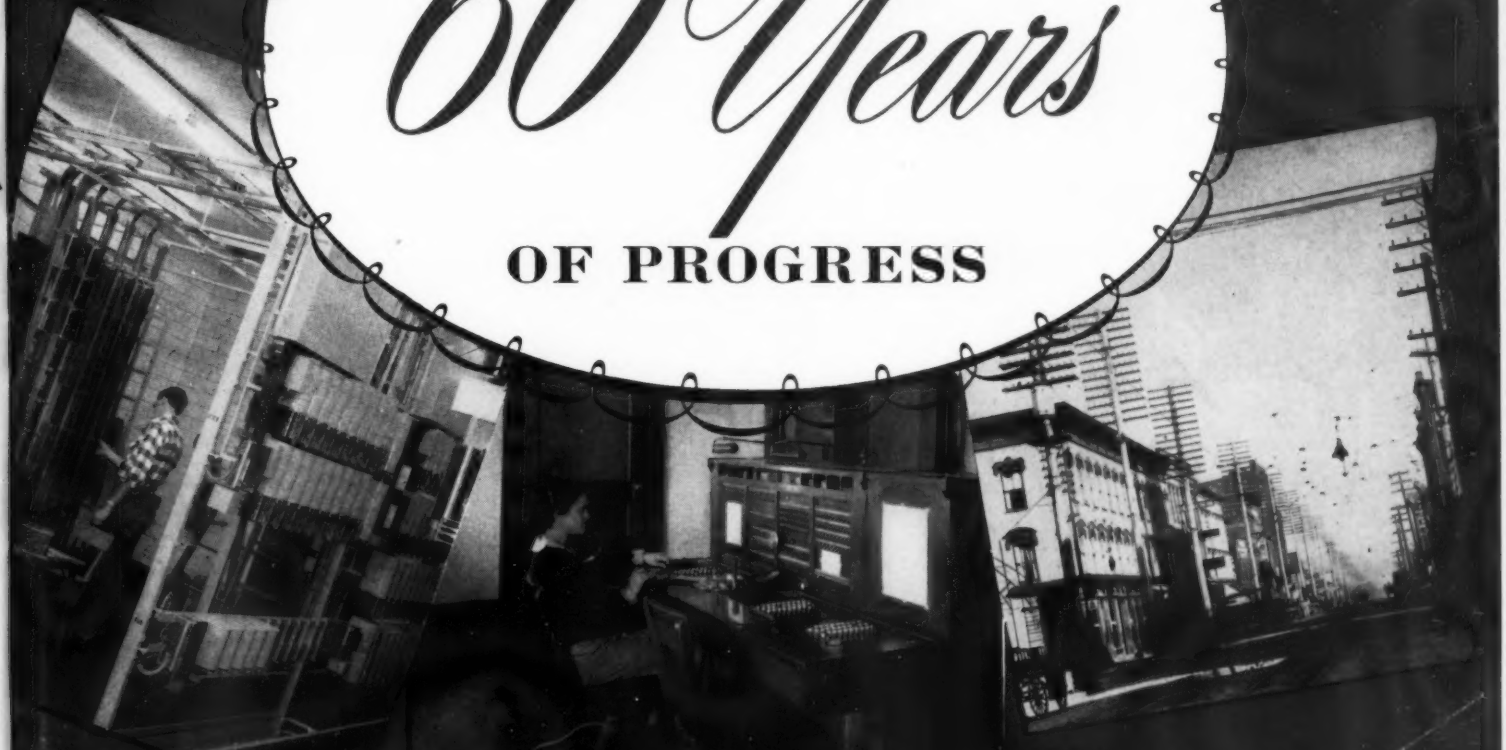

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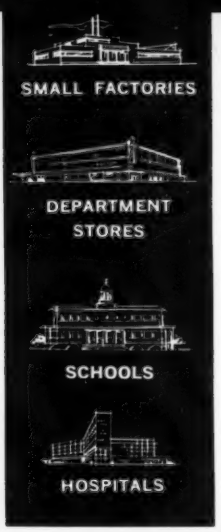

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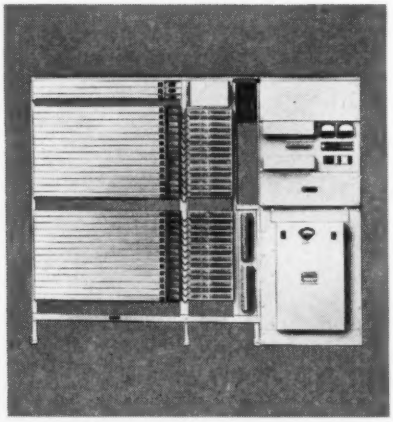

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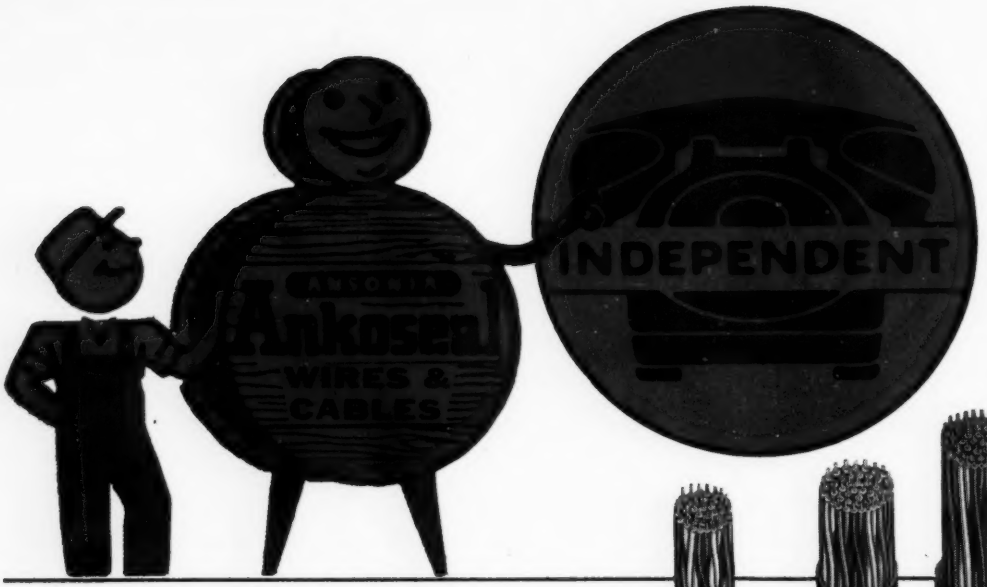
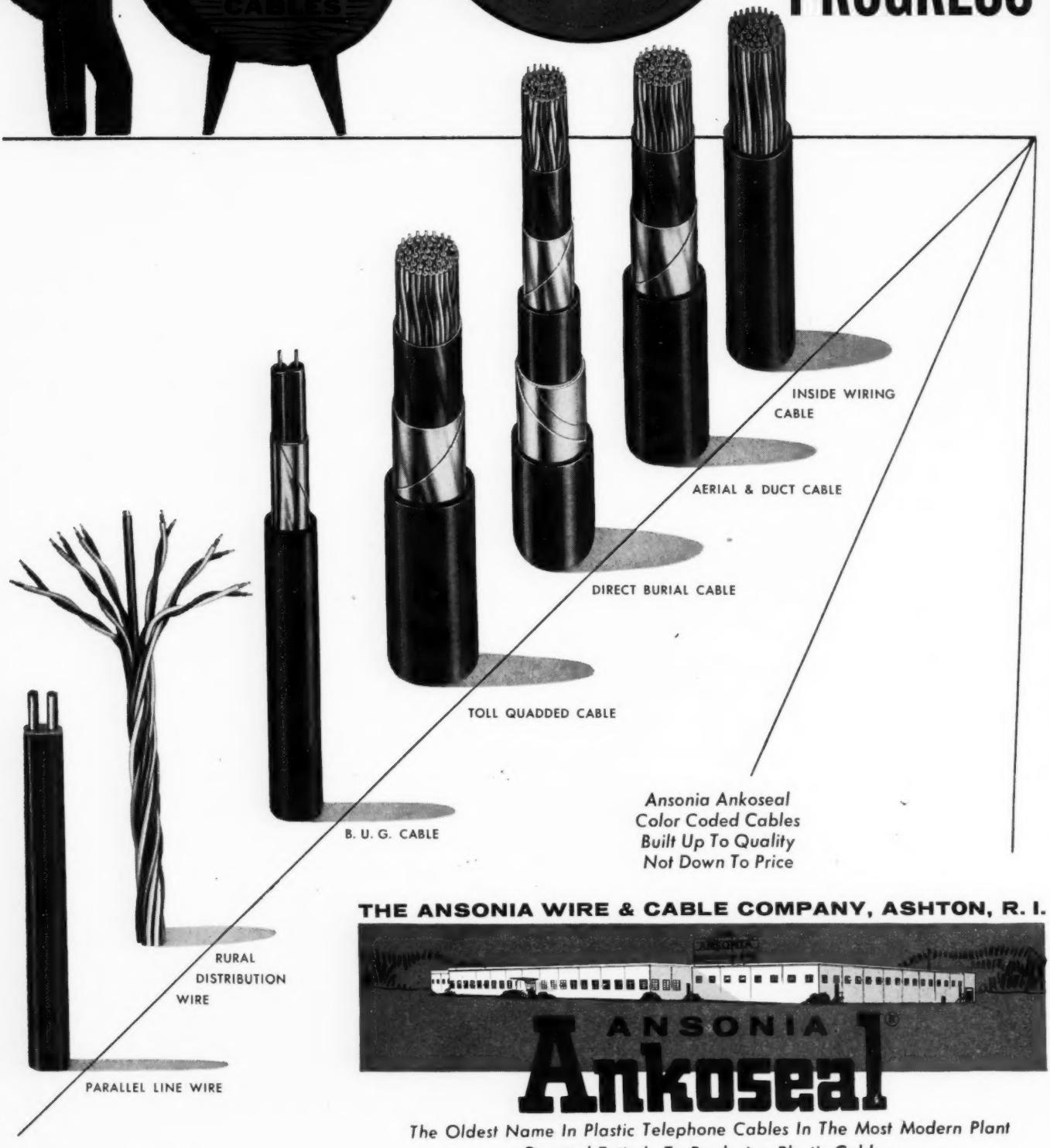


PARTNERS IN PROGRESS



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FLASHES AND PLUGS

FIRST CLAIM. Following the formation of the first national Independent association, it was announced that the Independents claimed to have 20 to 30 million dollars invested, and listed exchanges by states as follows: Ohio, 173; Iowa, 139; Illinois, 169; Michigan, 133; New York, 164; Pennsylvania, 147; Indiana, 142.

•

ALL ABOARD. More than 100 midwestern Independent telephone men traveled to the 1901 Buffalo convention of the Independent Telephone Association of the United States on a special train sponsored by TELEPHONY. Independent leaders then were deploring $1.00 rural rates and lack of interest in telephone service by farmers.

•

MANUFACTURERS UNITE. Independent manufacturers formed the Telephone Manufacturers' Association of the United States in May, 1902. At that time it was said there were "100 manufacturers and assemblers, employing capital of 38 million dollars."

•

WHAT A GAL. Indicating what was expected of a girl in telephone business in the early 1900's, TELEPHONY, in an article about Grace Armstrong of the Voorhies (Iowa) Mutual Telephone Co., stated that in addition to operating the switchboard, she collected bills and acted as trouble shooter, riding a pony along the line and carrying a kit of lineman's tools.

•

CANADIAN INDEPENDENTS. According to early reports Independent telephony in Canada dates back to August 1900. The Canadian Independent Telephone Association was organized in September 1905 in Toronto.

•

TIMES HAVE CHANGED. According to an early item, eight girls employed by the telephone company in Santa Barbara, Cal., in 1907 quit because the manager said he had been told their conduct at a Sunday picnic was unladylike. A company stockholder had reported that he had seen the girls climbing trees.

•

A TINKER. Rural subscribers in the early days of the telephone were curious as to how it worked. A story is told of a farmer who, in 1907, wanted to see what made his telephone tick, so he took the transmitter apart. He spilled the carbon and, being unable to retrieve it, decided that inasmuch as they looked pretty much alike, gunpowder probably would do as a substitute. He put the instrument together and worked the switchhook. All good telephone men know the end of this story. BANG.

•

BATTLE FIELD. An article in TELEPHONY in 1905 stated that Iowa was one of the great battlefields of the old Bell-Independent fight. As a result, the article said, there had been the development of perhaps the most remarkable telephone business in the country. It was stated that one-third of all the farm telephones in the United States, and one-fourth of all the farm wire mileage had been credited to Iowa in a census bulletin.

Telephony

THE JOURNAL OF THE TELEPHONE INDUSTRY
Since 1901

September 28, 1957

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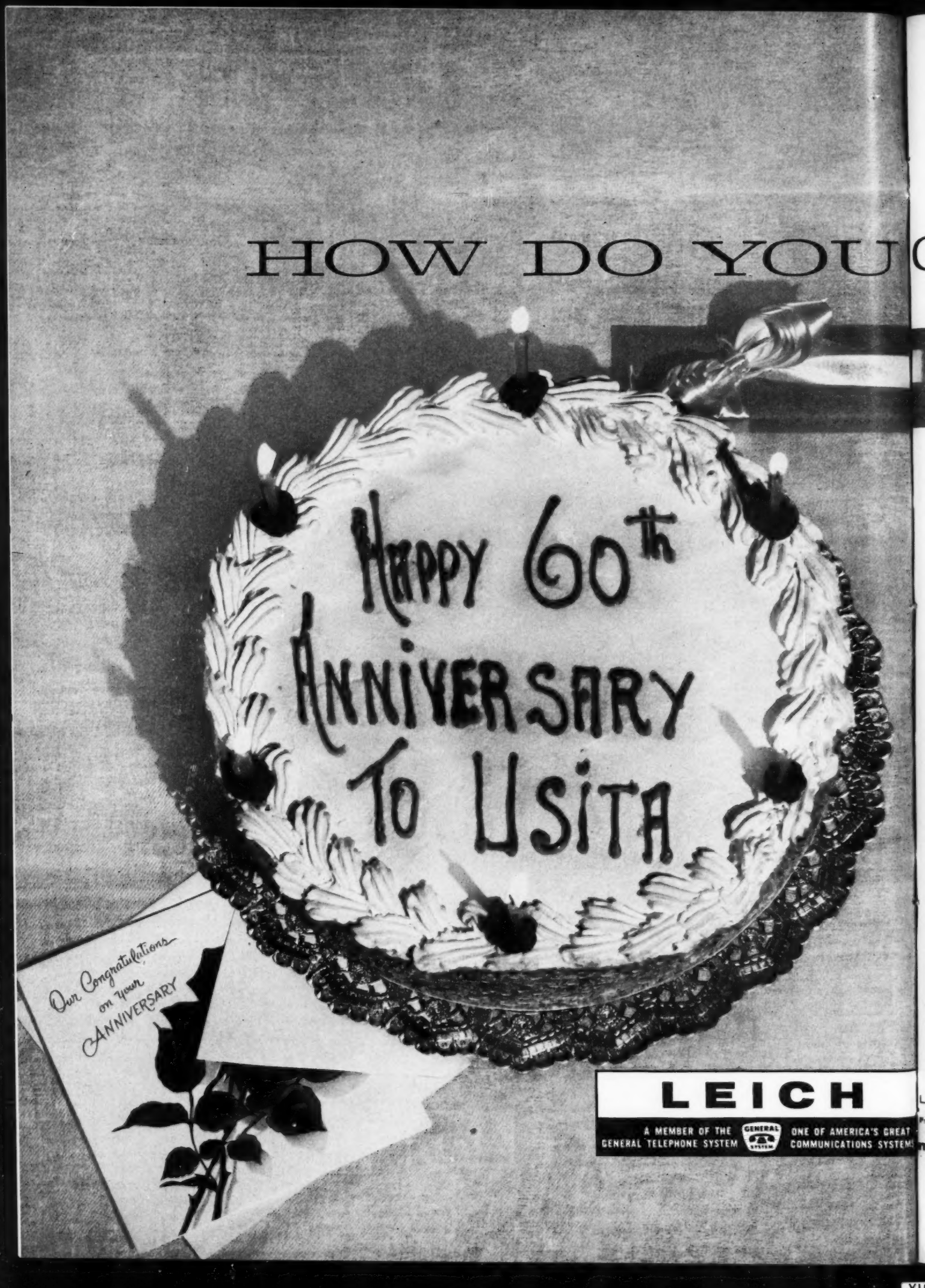
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CONGRATULATE A SPIRIT ?

This year commemorates the 60th Anniversary of the United States Independent Telephone Association.

USITA is not like many other associations.

You might almost say that USITA is a spirit . . . the spirit of the Independent telephone industry.

Hundreds upon hundreds of men and women have served USITA, without pay, sometimes even with small thanks and sometimes when it took valuable time away from their regular businesses.

New men take the place of old men to serve USITA unselfishly, and with a zeal never found in an ordinary association.

USITA has to be a spirit . . . or it could not for so long have been the guiding star to the telephone people and telephone companies, big and small, here and there throughout the length and breadth of our land.

Our sincerest congratulations to the men and women, the officers, directors, committee members who are now in office . . . and carrying on the good work in the true USITA spirit on this . . . USITA'S 60th Anniversary.

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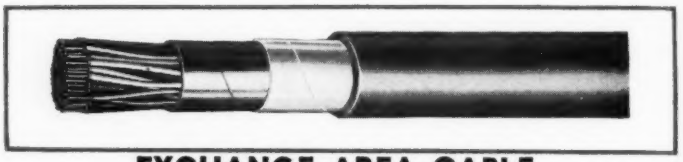

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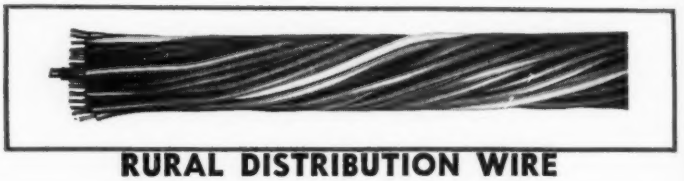

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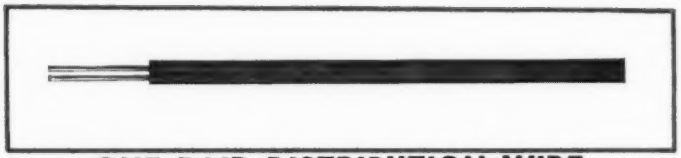

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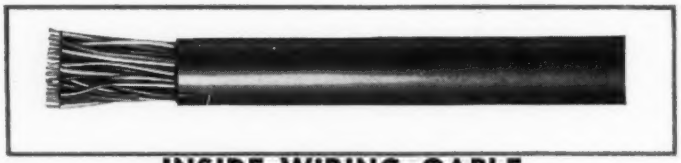

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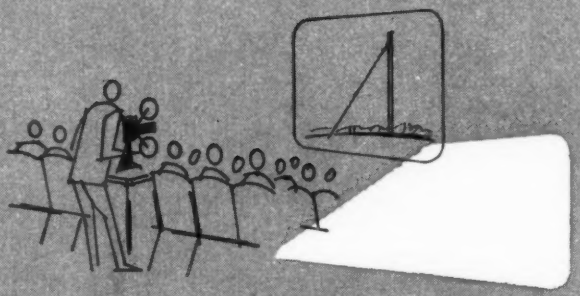

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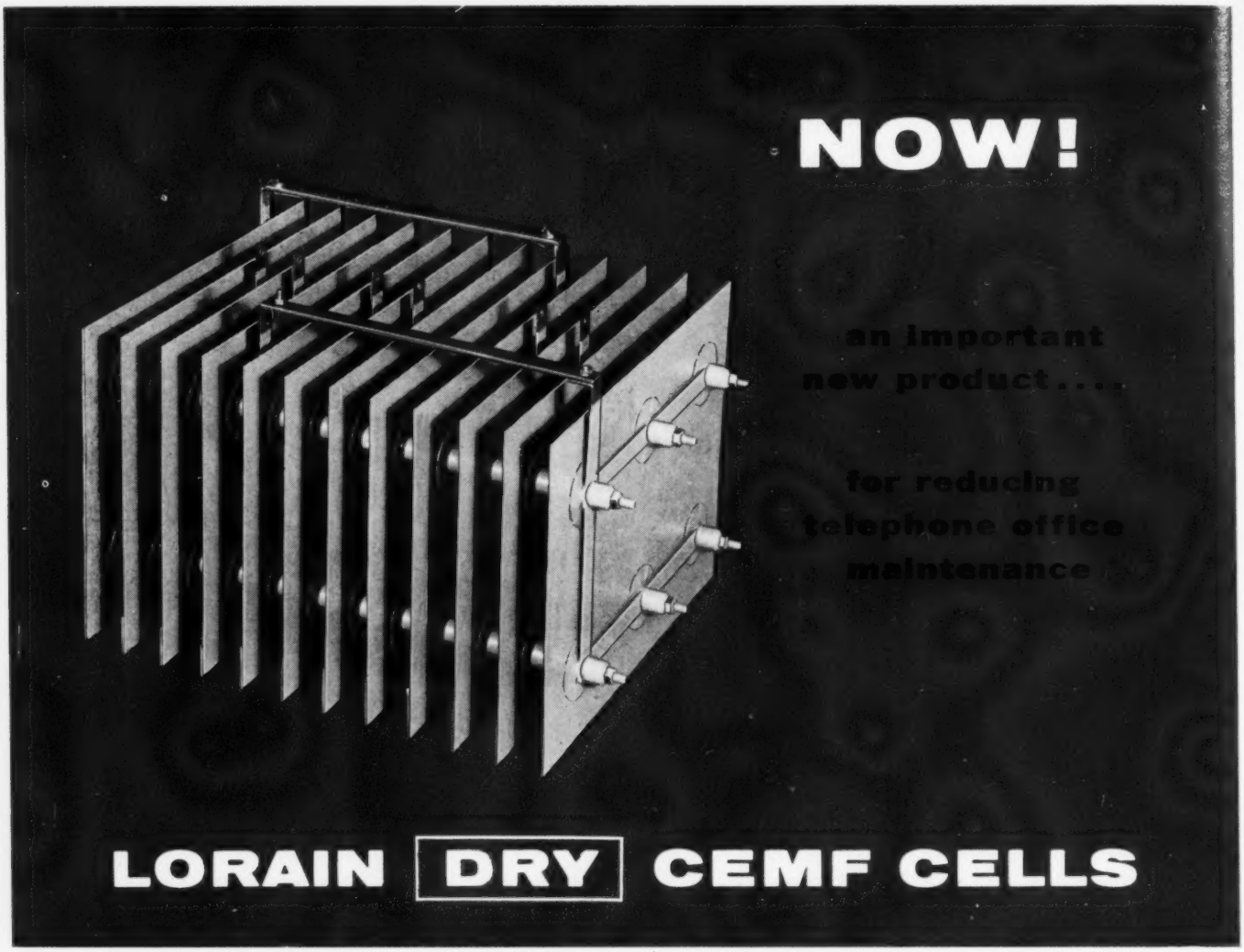

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From One "Old-Timer" to Another

TELEPHONY, which has been serving the telephone industry since 1901, congratulates and warmly applauds the United States Independent Telephone Association on its 60th anniversary, which it will celebrate at its annual convention on Oct. 14, 15 and 16 in Chicago.

During its long life, the USITA has steadfastly adhered to the one single purpose for which the national Independent association was organized in 1897—promoting the welfare and constructive development of Independent telephony, which has played such an essential role in providing America the best telephone service in the world.

On the basis of its long record of 60 years, the USITA can be counted upon to carry on and fulfill its obligations to Independent companies, both large and small. This is why we at TELEPHONY extend our sincere congratulations and best wishes to the association on its Diamond anniversary, and express the conviction that it will continue to render vital service to Independent telephony for many years to come.

The USITA should have the fullest support of all Independent companies, large and small; first, through membership; second, through participation in any activities and undertakings sponsored by the association, and, third, through attendance at its annual conventions.

In this pre-convention issue, we are presenting articles briefly depicting the accomplishments of the United States Independent Telephone Association, the development of the Independent industry, and the progress that has been made in the various phases of telephone company operation—Plant, Traffic, Commercial and Accounting.

We hope this brief history of the Independent business will serve to bring up pleasant and rich memories for the "old-timers" who have participated in and witnessed the last 60 years of telephone progress, as well as to remind the "youngsters" that today's high development of the telephone art came only as a result of many, many years of arduous work and pioneering by those who have gone before them.

We would like to repeat an observation we made in a recent editorial on the USITA's 60th anniversary. We said "that Independent men and women might well take the occasion of the anniversary to reflect upon the Independent industry's illustrious achievements; to consider the vital position it holds today, and to contemplate the industry's future course if it is to maintain and enhance its presently recognized sphere of influence in the telephone business and in service to the public."

If Independents pledge themselves to give serious thought to these premises during the remainder of the year, the USITA's anniversary celebration will have contributed significant and lasting benefits to the Independent segment and to the industry as a whole.

As we also said recently, "Meeting the challenges that will face the Independent industry in the future, will require more coordination and cooperation on the part of all Independent companies." They have the vehicles for greater teamwork in their national and state associations. One of the decisions they should make during their 60th anniversary celebration, is to give greater support and cooperation to these organizations, not only for their own benefit, but for the promotion of the welfare of the entire telephone industry, in particular, and private enterprise, in general.

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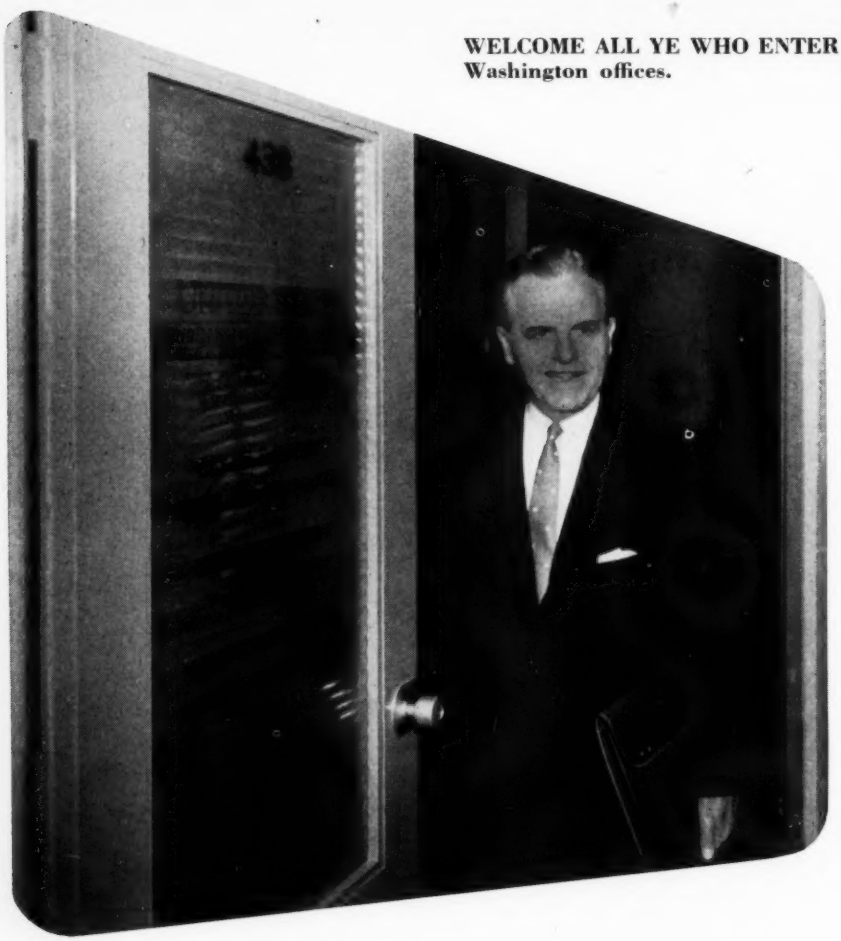

WELCOME ALL YE WHO ENTER HERE. The author at the entrance to USITA's Washington offices.

How the USITA Functions Today

By CLYDE S. BAILEY
USITA Executive Vice President

BY BANDING together with his fellowmen in churches, clubs and associations the citizen attains objectives for the common good that he could not accomplish individually. By joining with his state and national telephone associations the Independent telephone man accomplishes much for his own company and the common good of the industry that he could not achieve alone.

It was in recognition of this undisputed fact that a hardy group of pioneers in the field of Independent telephony got together in Detroit, Mich., on June 22, 1897 and formed the Independent Telephone Association of America, later to become and remain the United States Independent Telephone Association.

Although some Independent companies were in existence as early as 1889, the expiration of the basic Bell patents in 1893 and 1894 resulted in a burgeoning of Independent companies and Independent manufacturers. It quickly became apparent that their local interests were overshadowed to some extent by other interests too broad and complex to be dealt with individually. It was recognized that in union there could be strength.

Although the circumstances which first gave rise to the creation of a national organization underwent changes, other conditions developed from era to era which continued to demand united action on a common front. The name of the association has undergone several changes in the intervening years but its fundamental purpose has remained the same.

That purpose as declared in the bylaws is to promote the general welfare of the individuals, firms and corporations engaged in providing Independent telephone service in communities in the United States, its territories and possessions.

The association has had an illustrious career. There are many monuments in the form of achievements attesting the effectiveness of its leadership. Those who labor in the association's headquarters in Washington join in expressing appreciation for the opportunity given them to be of service to an industry so important to the broad national free enterprise economy as ours. I consider it a privilege to have been permitted to play a part, even if only a minor one, in the making of telephone history.

The very existence of an organization like the USITA is proof of the realization that no telephone man or woman can live in isolation. An ancient philosopher once said that one who is independent of society is either a god or a beast. The association is the outward expression in the field of national affairs of the abiding dedication of Independent telephone people to a service touching intimately the lives of millions.

The association holds in grateful and respected memory the 31 presidents who have served as its chief executive in the 60 years of its existence. Of sentimental memory likewise are those who have served on the association's board of directors and also those who while not wearing the mantle of office, have devoted their talents to the association's problems and the industry's welfare.

With the growth of the telephone business the problems of the association have multiplied and the opportunities for service increased. The USITA in the work it is doing through its full-time staff and capable and conscientious committee members is consecrated to the welfare of every Independent company.

The organization is the national work-shop conducted on behalf of the thousands of Independent telephone companies, little and big, that comprise our branch of an important part of the American economy. It is the mouthpiece of these companies in matters of common concern arising in government departments in Washington, in the Halls of Congress, and in national relationships with the Bell System and other American business.

Over the years the association has been a constructive force on many subjects on numerous fronts before many forums. While there are many monuments to its success, those who are responsible for the management of the association's affairs have never been content to rest upon past laurels. Its officers and directors know that the success of any organization depends upon consistent dynamic qualities of leadership which look to the future.

The strides that have been made have been accomplished with the cooperation of Independent manufacturers and suppliers, directory publishers, trade magazines, and other firms which specialize in meeting the needs of Independent operating companies. We are proud of these firms. They are wide awake, virile, progressive entities, many of which enjoy both national and international reputations for the high quality of their product and service.

In connection with the current observance of our 60th anniversary, I have been asked by the editor of TELEPHONY to give my impressions of the association's proud history, its impact upon the national scene down through the years, and its activities in behalf of the industry as viewed from the Washington offices by myself and the members of our staff who are on the day-to-day firing line. In doing this I shall try to give a little more intimate picture of us than you have had before, a close-up of what goes on in the headquarters offices of the national trade organization of Independent telephony.

HOME OF THE USITA. The Pennsylvania Building at Pennsylvania Avenue, 13th and E Streets, N.W., Washington, D. C. Directly across the Avenue, in the Post Office Department Building, are the headquarters of the Federal Communications Commission.

It has been said that a successful business is but the lengthened shadow of one man. The United States Independent Telephone Association is the lengthened shadow of many men, some of whom are still among us but many

USITA WASHINGTON STAFF. Seated, left to right: Mervin H. Alexander, George C. Richert, Clyde S. Bailey, Leon F. Roberts, and Courtney S. Snyder. Standing left to right: Marjorie Richardson, Mrs. Mary Dellinger, Mathilde Bodkin, Mary Kidd, Mary Jane Rawson, Barbara Hyde, and Betty Hayes.

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of whom have left the scene. To call the roll of all who have contributed to the strength and usefulness of the association would fill many pages.

It is only proper to remind ourselves that we perhaps would not be here at all had it not been for those rugged individualists and sturdy souls who fought the good fight at the turn of the century and those who followed them and kept the faith.

Many Have Served USITA

The chief reason the USITA has been able to function so smoothly and efficiently during three-score years is that so many loyal, capable men have been willing to serve, often at a sacrifice, as officers, directors, and members of our numerous committees. Few realize how much time and effort are given each year by these men for a common cause. We are indebted to them and to the companies with which these individuals are associated.

In an address to our convention several years ago President E. M. Blakeslee after reviewing the association's activities and accomplishments remarked:

"From what I have said I believe it will be apparent that the association has distinguished itself in many ways upon many matters. The organization is conservatively financed. Its exchequer is in a healthy condition. Our staff though small is competent.

"The association enjoys a good reputation in Washington and elsewhere. It conducts its affairs discreetly, under an executive committee and a board of directors composed of leaders in the industry who have dedicated their lives to the telephone business and who have an intimate interest in the welfare of the industry and the trade organization which represents it on the national level."

The chief officer of the association is the president. The roster of telephone men who have served in this capacity records the names of many devoted servants of the industry. The president is chosen by the board of directors which each year elects one of its members to this important office. He is assisted by three vice presidents and an executive vice president.

Although the presidential office was for many years and is now a rotating one, from 1919 to 1937 there was a full-time president. He was F. B. MacKinnon who had previously served as secretary of the Kansas Independent Telephone Association. Upon his death in 1937, it was decided to revert to the rotation policy and to have a full-time executive vice president. The first person to hold the latter office was Louis Pitcher of Dixon, Ill., who served from 1937 to December 31, 1942. It was at this time that I was invited to assume that office and the duties that went with it. I had come with the association two years before as its Washington representative.

As a result of my long contact with our business I believe there is a spiritual fabric running through the men and women in it, a fabric woven of the earnestness, the experience, the intelligence and the patriotism of generations of American people. That fabric is a precious thing.

In the 17 years I have been with the USITA I have met some of the finest people in America. There is no better group anywhere than in the telephone business. In this period and in the years I served as an officer of the National Association of Railroad and Utility Commissioners (NARUC) I have seen many a star rise in our industry, in other industries, and in government. Each in his own way made a contribution. Each had his hour of fame. I have also seen stars fall or fade away. It is a part of the inexorable law of life. As the poet said, all paths of glory lead but to the grave. Seemingly there must be an ending somewhere for all just as there must be a beginning.

Our board of directors is composed of 36 practical and experienced telephone men. They meet twice a year—in the Spring and in the Fall. Between meetings the association's policy-making business is transacted by an 11-man executive committee composed of board members, including the president, who serves as chairman, and the immediate past president.

Policy Forming Body

The board is not an operating agency. It is a deliberative, *policy-forming* body. Implementation of declared policies is left to the executive vice president, his staff, and committees. The broad nature of these activities was described by President Donald C. Power to the Pennsylvania association in an address, "The First 60 Years," when he said:

". . . there are roughly five different categories of responsibilities which your national association now covers. As the charter suggests, it must deal with the three constitutional branches of the federal government: Legislative, executive, and judicial, which includes (for public utilities) the regulatory commissions.

"Added to those three aspects of USITA activity are two more important responsibilities: Looking after the Independent industry's relations with the Bell System and other industries and, finally, looking after the Independent industry's publicity and general public relations."

Mr. Power also said: "During the time I have been president of your national association I have come to realize in a personal way the indispensable value of the USITA to the individual member companies. I have found that your association is highly effective and is well organized to represent your interests in a number of different ways and for a variety of purposes."

Has Advertising Program

As our member companies have grown and expanded, so too has the association. In more recent years, in order to acquit its responsibility to a fast growing industry, it has enlarged its quarters and added to its personnel. It has embarked on a national advertising program, and expanded its sphere of usefulness in many other ways.

When the USITA headquarters were moved from Chicago to the nation's capital in 1943, the Washington branch consisted of a small office in the National Press Club Building. The "staff" consisted of myself and one secretary. When the headquarters were transferred we moved into the Munsey Building.

Because the need for a larger workshop became imperative we moved again in September, 1954 to our present 10-room suite in the modern 13-story Pennsylvania Building at Thirteenth Street and Pennsylvania Avenue, directly across the street from the Post Office Department Building which houses the Federal Communications Commission.

Here we have five men on our staff, all specialists in their respective fields, six secretaries and a bookkeeper for a total of 12 employes. We are looking for another in the person of a full-time radio engineer.

I believe I can best portray our staff administrators and summarize their activities by giving a thumb nail sketch and listing the duties of each.

Executive Vice President (Clyde S. Bailey): I am one of those rare individuals who, though born in Pennsylvania, has been almost a life-long resident of the District of Columbia. A lawyer by profession, I entered the telephone field by way of commission regulation: I served for some years as assistant general solicitor of the NARUC. To paint with a broad brush, my duties with the USITA include:

(1) Giving attention to national legislation of concern to the telephone industry.

(2) Executing broad policies as determined by the board of directors.

(Please turn to page 82)

UNIQUE COPPERPLY® WIRE . . . *unique advantages!*

● National-Standard Copperply is unique because its heavy copper jacket is bonded to a steel wire core by a continuous *electroplating* process. This results in precise concentricity and permits closely controlled coating thickness. It also permits the use of core steels in a wide range of analyses.

The coating is so uniform and the bond so permanent that Copperply can be twisted, bent, flattened, stranded, woven or even roll-threaded without the slightest danger of rupturing the coating or otherwise exposing the core. Thus Copperply's extreme uniformity and permanence mean prolonged service life and maximum protection against rust, regardless of forming or service requirements.

The uses for this unique new wire are many. They range from high strength communications line and electronic applications to wire for non-rust masonry ties and decorative jewelry chain—*wherever* the combined qualities of copper and steel can work to advantage.

Name the use you have in mind and let National-Standard help you work out details. It's part of our unusual service.

NATIONAL NS NATIONAL-STANDARD Company NILES, MICHIGAN **STANDARD**

DIVISIONS: NATIONAL-STANDARD, Niles, Mich.; *tire wire, stainless, music spring and plated wires* • WORCESTER WIRE WORKS, Worcester, Mass.; *high and low carbon specialty wires*
WAGNER LITHO MACHINERY, Secaucus, N. J.; *metal decorating equipment* • ATHENIA STEEL, Clifton, N. J.; *flat, high carbon spring steels* • REYNOLDS WIRE, Dixon, Ill.; *industrial wire cloth*

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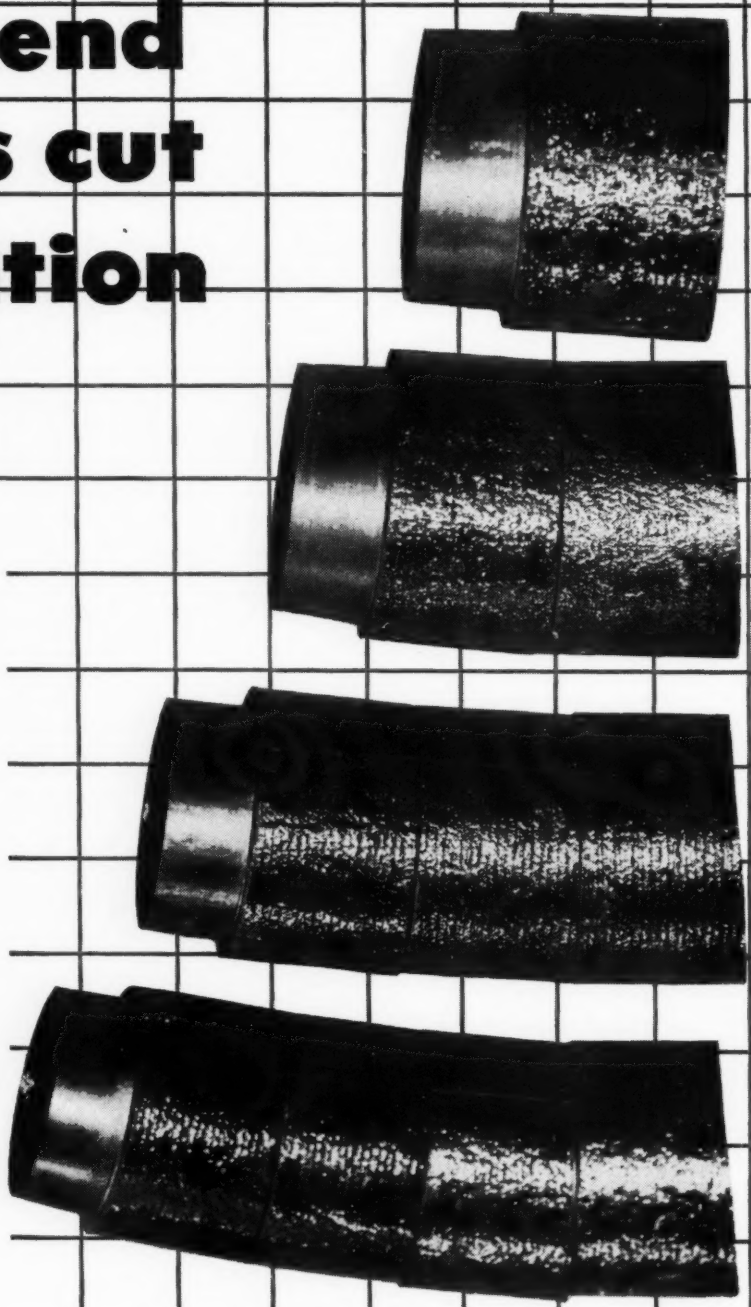
These bend sections cut installation costs



Orangeburg 5° Bend Sections are the "on-the-job" answer to special bend problems. They get over, under or around those unforeseen obstructions . . . and do it easily and economically.

Crossovers . . . transformations . . . offsets . . . can be made in the field by joining sections together to obtain the desired direction change. No costly delays . . . no special bends needed.

Orangeburg 5° Bend Sections* are another reason why Orangeburg Fibre Conduit is the ideal protective raceway for underground electrical cables.

Distributed by Graybar Electric Company and General Electric Supply Company. Branches and stocks in principal cities.

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**Made for Orangeburg Standard Conduit only.*

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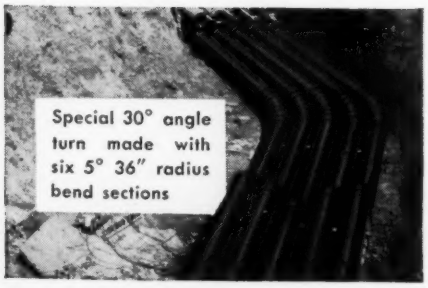
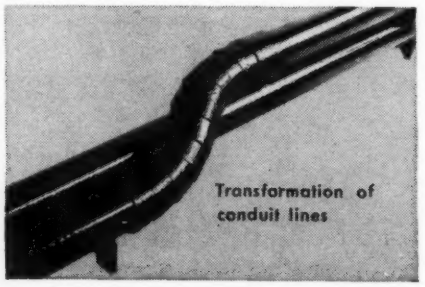
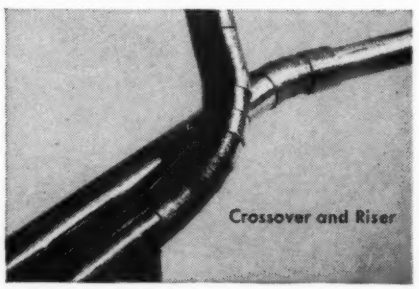


Special 30° angle turn made with six 5° 36" radius bend sections



Transformation of conduit lines



Crossover and Riser

Now you can gain *all* the advantages of combining cashiering and recordkeeping functions in one location, with the new specially designed REMINGTON RAND® Customer Service Counter. One sectional counter unit accommodates all facilities and records for these operations... for the larger office several units can be joined together in perfect harmony.

Designed to eliminate "standing" cashiering, the counter height permits the clerk to serve from a seated position facing the customer. Facilities for a normal cashiering operation are within arm's reach. As a result customers are served more cordially, promptly and efficiently.

Most important, full time point-of-use fire protection for your vital records is now available in desk-height, certified, insulated counter units. For an estimate on a Customer Service Counter installation tailored to your specific requirements, contact your local Remington Rand representative. For FREE descriptive folder SC764 write today to Room 1977, 315 Fourth Ave., New York 10.

Be sure to visit the Remington Rand Exhibit at the United States Independent Telephone Association Convention, October 14-16, 1957, Suite 544A - 546A Hotel Conrad Hilton, Chicago, Ill.

Note the compact, efficient and comfortable working area side of the Customer Service Counters, pictured in the above typical Telephone Company installation. Three units combine protection and convenience for operating records and cash.

Remington Rand
DIVISION OF SPERRY RAND CORPORATION

Taking a Look at the Next 60 Years

The USITA and Independent Companies will have plenty of work to do — more demanding, more specialized and more expensive. Their future is bright, but not without solving many difficult problems.

By FRANCIS X. WELCH, *Telephony*'s Washington Editor

THIS year of 1957 marks the 60th milestone in the history of the Independent telephone industry in the United States—from the standpoint of its national organization. Much is being said and written about this birthday anniversary, as it is celebrated by the United States Independent Telephone Association.

Birthdays usually call for more than reminiscence, however. In the case of such an important industrial group, they would seem to call for stock-taking and looking ahead. That being so, this article will attempt to look into the future.

It would be presumptuous for this writer, with no technical background, to forecast what telephone service will be like during the next 60 years or even the next six years. But it is a fact that coming events do cast their shadows before them. And, what this writer would like to stress is the probable impact of these coming events on the Independent telephone industry, *as an industry!* What will be the effect of various inevitable changes, such as the spreading use of mobile telephone operations, on the organization of the Independent companies and their national association in the years ahead.

If, by some scientific miracle or just plain black magic, it were possible to resurrect one or more of the original founders of the Independent telephone association 60 years ago, he might have some difficulty in recognizing the telephone business as it is conducted today. Viewed from the starting point of 1897, the pioneers of that day might have had some trouble forecasting or even visualizing such modern service. Complete conversion from manual to dial and the smooth effortless long distance operation, which is so commonplace today that little thought is given to it, was not even a glint in the eyes of the founders of 1897.

Yet, a good many of those early pioneers lived to see most of these improvements come along. And if we cut the period of forecasting in half, and went back only to 1927, a good many could have predicted many of our modern developments within a surprising degree of accuracy. Conversion to dial was just getting a good start in 1927, and so was long distance service as we know it. But it did not take much of a prophet in that year to foretell that one day the entire telephone business would be more or less conducted on an automatic basis, or that long distance service would be so improved constantly that people would use it as unhesitatingly as a local service.

And, so today, as we stand on the threshold of the second 60-year span for the USITA, what are some of the obvious things to look ahead for? What are some clearly indicated changes which are just as definitely indicated today as dial conversion was back in 1927? And what can we see ahead from the standpoint of a national association of Independents? This is not prophecy or tea-leaf reading. It is simply a recapitulation of trends already discernible — developments already "in the works"—but which will be realized in full only after long years ahead.

First there is the growth trend, which will heavily favor territory now served by Independents. The indicated average growth for the entire United States over the next 13 years (1970) will be 27 per cent. Over the next 25 years (1982) it will be 46 per cent. Population experts hedge at giving much beyond 25 years with their forecasts. But it is clear that by 1997, when the USITA will be 100 years old, the population will have increased about 75 per cent. So, over the period of the next 60 years, the population should easily double its present number.

This means that by 1970, there will be 217 million; by 1982 there will be 250 million; and by 2017 there will be

USITA ARRANGES ADVANCE REGISTRATION

In order to minimize congestion at the convention registration desk, USITA is providing for advance registration. To do this it will be necessary for each company to let USITA know whom it will send to the convention and by whom they will be accompanied. Send your list to Clyde S. Bailey, executive vice president of USITA, Suite 438 Pennsylvania Bldg., Washington 4, D. C., promptly.

The association will prepare registration cards and name plates for badges in its Washington office. When you register for the convention, you may go to the proper alphabetical section of the registration desk in the Astoria Room, Conrad Hilton Hotel, and ask for your badge.

NUMBER 17 Toll Grade. For all exchange circuits and all toll and trunk lines not exceeding ten miles. Has about the longest leakage path possible with single petticoat.

Dependable ...in emergencies

With Hemingray screw-thread glass insulators on the line, you can depend on their strength and uniform high quality to maintain service . . . even under the most adverse conditions.

Since 1870, Hemingray insulators have been the world standard for quality and performance on overhead telephone and telegraph lines. Hemingray has pioneered many insulator developments to keep pace with the requirements of improving communications systems.

When you order Hemingray Glass insulators you are assured of the finest . . . and you are assured of prompt delivery *when and where you want them.*

Hemingray Glass insulators are a product of Kimble Glass Company, subsidiary of Owens-Illinois, Toledo 1, Ohio.

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Featured speakers at the USITA convention will be these three nationally-known figures. Gov. Theodore R. McKeldin of Maryland (left), and J. F. Childs (center), vice president and the head of the Public Utility Department of the Irving Trust Co. of New York City, and F. R. Kappel, president of American Telephone & Telegraph Co.

about 350 million. Note, however, the areas of greatest gain. As compared with a national average increase of 26 per cent over the next 13 years (1970), the following states will show gains of more than 30 per cent in the order of the greatest gains:

States	*Population Growth by 1970*	*Per Cent Increase*
Nevada	217,000	92
Arizona	796,000	79
Florida	2,333,000	65
California	7,335,000	57
Delaware	204,000	52
Maryland	1,226,000	45
Utah	354,000	44
Colorado	650,000	42
New Mexico	333,000	42
Oregon	631,000	38
Ohio	3,313,000	37
Texas	3,000,000	34
Washington	852,000	33
Indiana	1,386,000	32
Connecticut	659,000	30
New Jersey	1,618,000	30

A mere glance at this list of states will indicate that the big growth is in areas where Independent companies are already well represented, such as in the two big "boom" states of California and Florida. They are also well established in the Mountain states, Ohio, Indiana, and the Pacific Northwest. The rest of the above East coast area of extra growth is mostly Bell territory.

Of course, nearly all states are going to show some growth in the 13 years ahead, with the exceptions of Mississippi, Arkansas, and Oklahoma, for which there is some actual decline forecast. The New England area will remain relatively static, outside of Connecticut. The rest of the Middle West area where Independents are well represented will show solid and healthy growth prospects, such as Illinois (22 per cent), Wisconsin (24 per cent), and Minnesota (21 per cent). New York will be nearly average (25 per cent) and Pennsylvania somewhat less than average (15 per cent).

Second, there is the factor of new techniques of communications. We all know that the communications techniques of the future are going to rely less and less on the conventional pair of wires and mechanical switching which have been the mainstay of the business since it was started over three-quarters of a century ago by Alexander Graham Bell. Wired equipment into the subscriber's home will continue to be the foundation of the service. From there on, however, there are going to be a lot of changes made which Dr. Bell would hardly recognize if he were to come back and if nobody were there to explain to him what was happening.

Mobile telephones connecting automobiles, boats, trains, planes, and other moving objects with fixed points of communication have already become accepted facts. Electronic dialing, residential, business, and industrial interconnecting communication systems are definitely in the cards for future exploitation. The greatest questionmark of all is the use of radio frequencies (principally in the microwave range) now being fought out before the Federal Communications Commission.

Indeed, this very battle of the microwave may well prove to be the Iliad of the telephone industry, determining whether it will go forward to become a significant part of the future over-all communications picture, or be banished to shrinking citadels of purely exchange types of conventional telephone business.

The very growth trends outlined above (as between the different states) give us a clew as to the pressure which vastly increased concentrations of population will put upon communication facilities of all types. From time immemorial, the art of communications has always been in competition with the art of transportation.

In the beginning it was one and the same thing. The messenger carried the message and, in turn, was carried himself by some form of transportation. When the invention of the telegraph and telephone set the art of communications free from the physical limitations of mass transportation, such as by trains, stages, or boats, it opened up new horizons of speed.

Furthermore, it substituted instantaneous transmission of intelligence for a lot of physical traveling, no longer needed.

This competition or substitution of communications for transportation is a development that has been going on ever since. But it is going to go on much *more* in the future. Every time the flashing of some form of intelligence by wire or radio takes the place of physical movement of persons or property, however rapid, it means a tremendous saving of time, money, or labor.

With the steady trend of light industries to the suburbs, new forms of communications are likely to develop whereby piecemeal operations or processes can be coordinated from central

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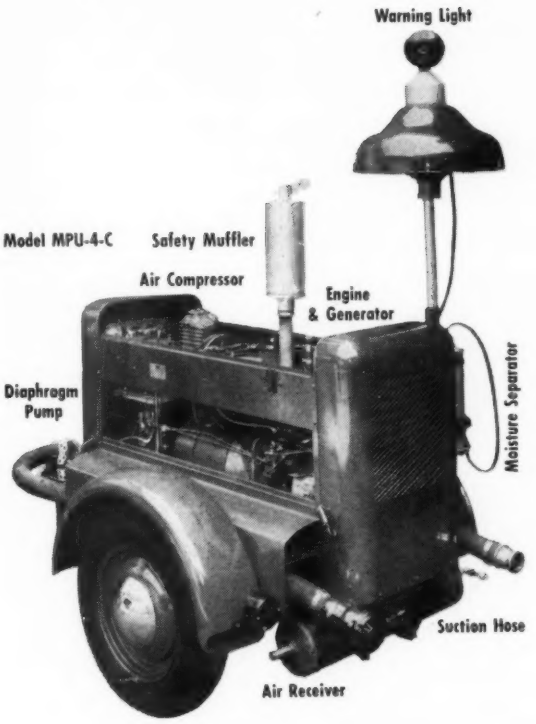
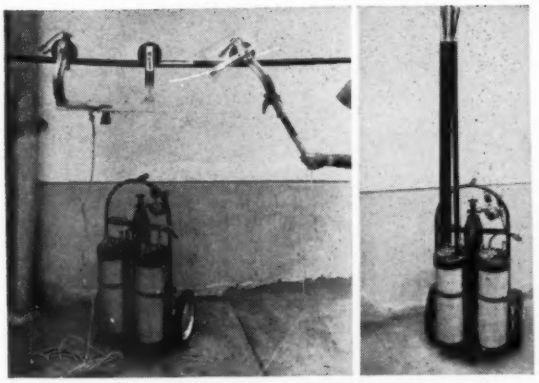


MOBILE POWER UNIT
(Model MPU-4-C)

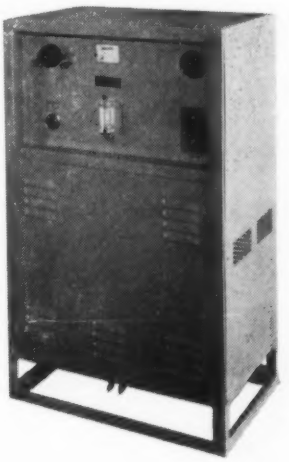
- Generator slow speed for quietness
- Pump—Diaphragm type to remove seepage and drain back
- Air Compressor—to put cables under pressure for cutovers or repairs
- Furnished with or without pump and compressor
- 300-Watt floodlight illuminates working area
- operates soldering pot and iron, electric and air tools
- electric blower to ventilate manhole
- supplies dry air for cable cutovers, flash testing, etc.
- diaphragm pump can be operated from manhole by push button control
- buzzer signal for summoning helper
- light, easy to handle



LEAK DETECTOR APPLICATOR
(Model LD-1 & LD-2)

Both models use highly successful chemical type leak detector. Applicator's dual nozzle sprays both sides of pressurized cable, giving 100% coverage. Bubble cluster forms around leak within minutes and can be clearly seen from the ground. Air pressure bottle in cart supplies regulated pressure in solution tank at all times, can be adjusted for different heights.

MODEL A
Air Compressor Dehydrator



Exchange equipment designed to supply chemically dry air for telephone cables, aerial and underground, this unit can supply as many as 30 cables. The unit is equipped with volume recording air meter, high and low pressure alarm switches, humidstat and hour meter.

- **Completely automatic in operation**
- **Air purifier to eliminate oil mist**
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headquarters. This could bring back the old local or neighborhood shops or even, in some cases, the old piece-work operations that could be done in the worker's own home.

City planners Percival Goodman and Paul Goodman pointed out, in a book published by the University of Chicago Press 10 years ago, that as our communication techniques improve it might eventually be cheaper to transport materials twice a week than to transport working people twice a day. They said: "The time of life of a piece of metal is not consumed while it waits for its truck; a piece of metal does not mind being compressed like a sardine."

Of course for any such development of decentralization there would have to be a corresponding *centralization* of communication facilities. And, it is a good bet that many or most of these facilities would be in the nature of telephone service. There will be teletypewriter and facsimile machines and even closed circuit television, whereby foremen or other supervisors could give visual instructions and check on work progress.

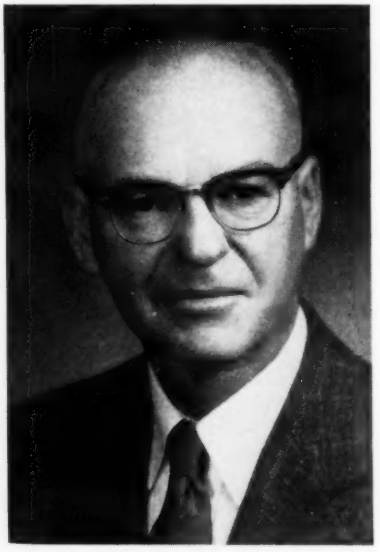
Merely talking about closed circuit TV suggests supplementary use of telephone facilities which is bound to grow in numerous fields. Education, industrial research and development, scientific and medical research and procedural operations, are only a few of the applications indicated. The entertainment features by applications of home movies have already been previewed in the current experiment at Bartlesville, Okla.

Indeed, with reference to educational features, one wonders whether the hullabaloo over crowded schoolrooms and the coming avalanche of successive waves of schoolchildren will not find a solution in the form of some centralized educational techniques. These could be all done with mirrors, so to speak—meaning closed circuit TV.

This is not to suggest that closed circuit TV will ever be an adequate or complete substitute for personal instruction. Somebody has to keep score. But one wonders whether closed circuit TV, or something like it, may have to assume a lion's share of the educational burden under the pressure of such

(Please turn to page 98)

D. C. POWER
USITA President



C. W. HAAS
USITA Vice President

H. A. BARNHART
USITA Vice President

Here are the officers of the United States Independent Telephone Association, in addition to Executive Vice President Clyde S. Bailey and Secretary George C. Richert, who have successfully guided the affairs and activities of the association during the past year.

F. B. McHENRY
USITA Vice President

C. D. BROREIN
USITA Treasurer

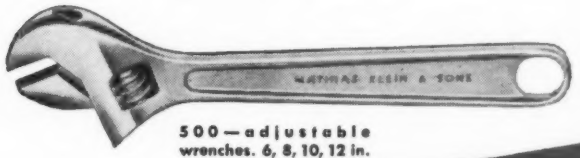
201—famous Klein Side Cutting Plier. Sizes 5, 6, 7, 8 and 9 in.

201-NE—rounded nose side cutting plier. Sizes 5, 6, 7, 8 and 9 in.

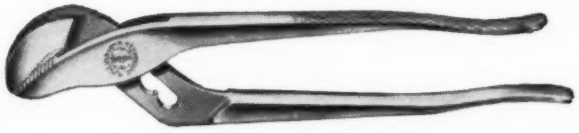
213-9NE—high leverage plier. Will cut regular and weatherproof hard drawn copper wire up to No. 2.

301—long nose plier. Available in 5-, 6- and 7-in. sizes. Also may be had with cutters.

202—narrow nose oblique cutting plier. Available in 5- and 6-in. sizes.



500—adjustable wrenches. 6, 8, 10, 12 in.



510—pump plier. One hand operation. Length, 9½ in.

KLEIN TOOLS EST. 1857 TRADE MARK

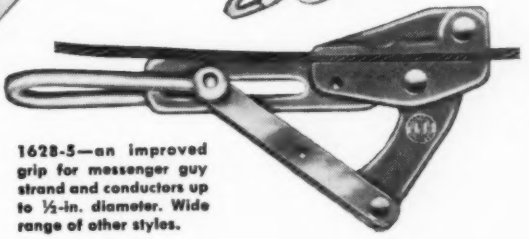
1857 100 YEARS OF SERVICE 1957

a century of progress

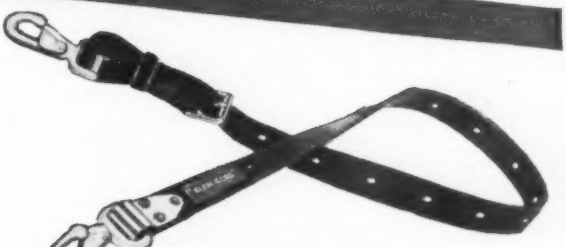
Klein has been the leading supplier of tools and equipment to the electrical industry since the first wires were strung. It was just 100 years ago that Mathias Klein first opened his little forge shop in Chicago. Today the name Klein is known for quality the world over. From your Electrical Distributor, you can secure anything you need in tools and equipment for linemen and electricians. Below are a few of the popular Klein items available.

5249—linemen's belt. Full floating with "Klein-Kord" sliding trace. One of a complete line.

1945-A—climbers, right and left, adjustable from 15 to 18 in. One of a complete line.



1628-3—an improved grip for messenger guy strand and conductors up to ½-in. diameter. Wide range of other styles.



5294—"Klein-Kord" nylon safety strap made of multiple plies of strong, woven nylon bonded with frictioning and vulcanized in neoprene.

This new Klein Catalog is just off the press. A copy will be sent to anyone interested on request.

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There is a type of ACME VISIBLE equipment for every Telephone Record

- INFORMATION
- CABLE and TERMINAL ASSIGNMENT
- ORDER DISPATCHING
- KEYSHELF UNITS for Inter-Toll Dialing PBX Directories
- PERSONNEL and EMPLOYEE SERVICE
- FORCE ASSIGNMENT
- TOLL TICKET RATING
- FRACTIONAL CHARGE and ALLOWANCE TABLES

and many others

SEE equipment, record forms and supplies that are being used by Telephone Companies from coast to coast—to speed up service and reduce cost of operation in all departments.

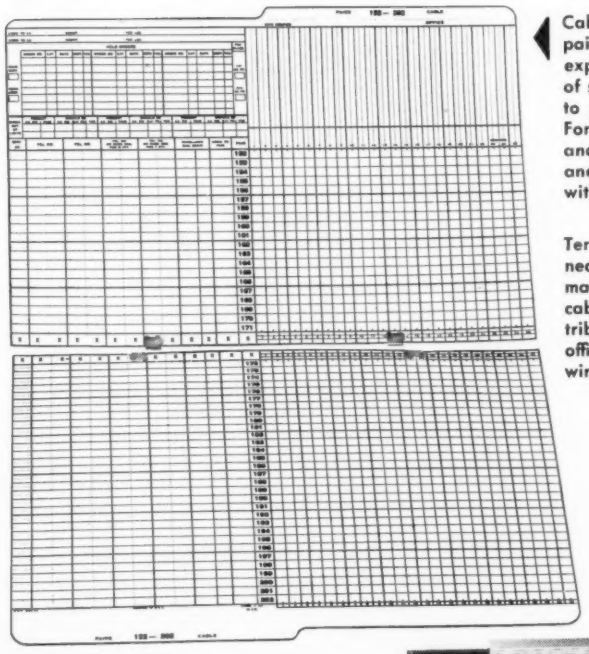
ACME VISIBLE RECORDS, INC.
CROZET, VIRGINIA

ACME VISIBLE

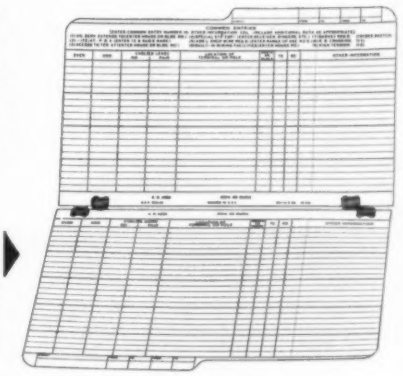
CABLE AND TERMINAL ASSIGNMENTS

Designed by experienced telephone personnel to accommodate all of the various conditions encountered in the preparation of terminal assignment, exchange subscriber cable, and related basic plant records, in accordance with approved system practices.

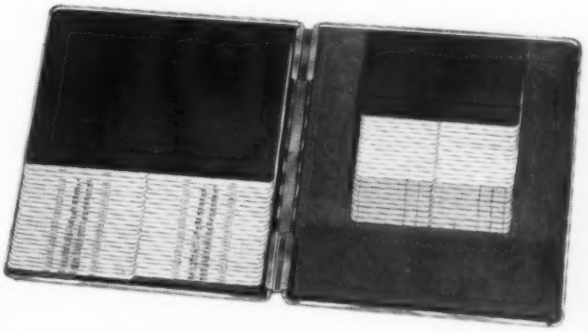
Simplifies and speeds the work of assignment. Adaptable for large, intermediate and small centers with the flexibility to meet the requirements for peak and normal work loads, varying number of cables, and other local conditions.



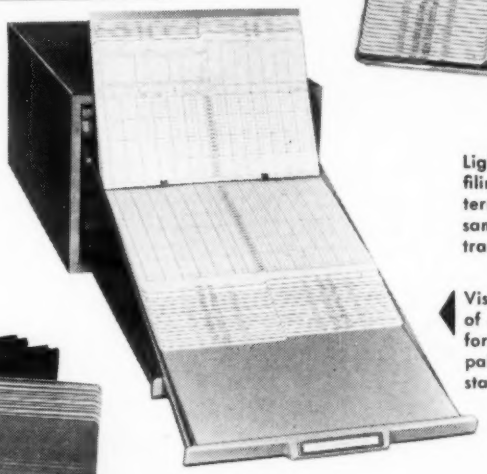
Cable assignment forms. With preprinted pair numbers, filed in numerical sequence, exposing a 51 pair complement. Cards are of special Acme Endurex rag content stock to permit repeated erasures and changes. Forms available for 50 terminal capacity and 8 party stations; 44 terminal capacity and 10 party stations; and for rural areas with more party lines.



Terminal assignment forms. Eliminate the necessity of referring to supplementary maps to determine the correct distribution cable terminal. Forms available for distribution by (1) street, block or alley; (2) office building or apartment; (3) exchange wire.

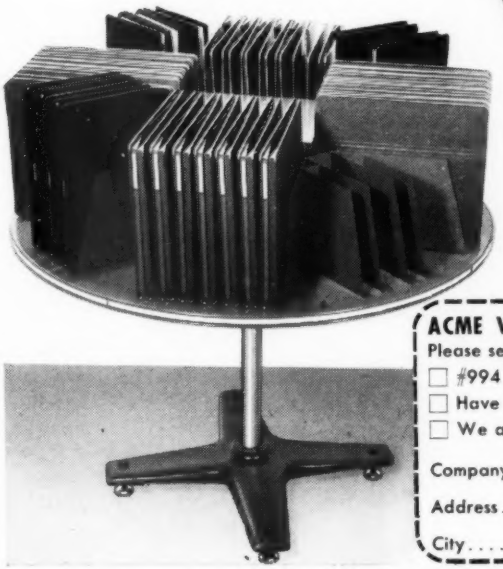


Light weight metal-edged visible books for filing of cable cards on one side and terminal cards on the other, or for the same card on both sides of the book. Attractive gray Keratol binding.



Visible cabinets are available in a number of sizes. Each tray has a maximum of 102 forms or the equivalent of 5,100 cable pairs. Cabinets can be either stationary on stands or desks, or mounted on turntables.

Rotary equipment available in various sizes with and without push button motor. Books slide in and out without any lifting. They provide accessability to records at many points around circumference, and permit clerk to do a complete cable throw.



ACME VISIBLE RECORDS, INC.

CROZET, VIRGINIA

ACME VISIBLE RECORDS, INC., Telephone System Division, Crozet, Virginia T9-28-57

Please send us illustrated booklet

☐ #994 on Acme Multi-Card Bulletin Holders ☐ #982 on Acme Flexoline for Telephone Companies

☐ Have representative call. Date . . . . . Time . . . . . .

☐ We are interested in Acme Visible equipment for . . . . . records.
KIND OF RECORD

Company . . . . . Attention . . . . . .

Address . . . . . .

City . . . . . Zone . . . . . State . . . . . .

XUM

Program for 60th Annual Convention

United States Independent Telephone Association

CONRAD HILTON HOTEL, CHICAGO

MONDAY, OCTOBER 14

9 A.M.—REGISTRATION—Astoria Room (Third Floor)

10 A.M.—ACCOUNTING CONFERENCE—Beverly Room. O. M. WESTRUP, *Presiding.* GREETINGS FROM THE USITA, FOSTER B. MCHENRY, Vice President; REPORT OF ACCOUNTING COMMITTEE, O. M. WESTRUP, Chairman; RECENT CHANGES IN FCC ACCOUNTING, ROBERT E. STROMBERG; INFLATION IN BUSINESS (A Moving Picture Film), ARTHUR J. ABBOTT; MECHANIZATION OF THE TELEPHONE ACCOUNTING JOB, ROBERT P. REUSS.

10 A.M.—ENGINEERING CONFERENCE—Waldorf Room. PAUL H. HENSON, *Presiding.* GREETINGS FROM THE USITA, DONALD C. POWER, President; PROSPECTUS—THE ENGINEERING COMMITTEE, F. E. NORRIS; TOLL TICKETING GUIDEPOSTS, L. GRAY BECK; ENGINEERING AND ECONOMIC ASPECTS OF MICROWAVE RADIO, ELMER H. DANNER; THE VALUES OF CONTINUING EDUCATION, HERMAN R. MCDONALD; THE FUTURE OF ENGINEERING EDUCATION, DR. J. D. RYDER.

10 A.M.—COMMERCIAL CONFERENCE—Lower Tower. KENNETH L. LAWSON, *Presiding.* GREETINGS FROM THE USITA, HUGH A. BARNHART, Vice President; REPORT OF COMMERCIAL COMMITTEE, KENNETH L. LAWSON, Chairman; TAKING A FORWARD LOOK, B. C. AMES; TELEPHONE MERCHANDISING TRAINING PANEL, Moderator—L. D. DENSMORE, Panelists—JOHN S. DAVIES and J. P. BORDEN; NEW TRENDS IN JUDICIAL AND REGULATORY DECISIONS, LAMAR S. STOOPS.

2 P.M.—GENERAL SESSION—Williford Room. CALL TO ORDER, CLYDE S. BAILEY, Executive Vice President; A MORE AND MORE VIBRANT INDEPENDENT TELEPHONY, DONALD C. POWER, President; REPORT OF THE TREASURER, CARL D. BROREIN; COMMON GOALS FOR CHANGING TIMES, F. R. KAPPEL; INTERURBIA—THE CHANGING FACE OF AMERICA, FRANCIS E. SAMMONS, WILLIAM C. MCKEEHAN, JOHN M. WILLEM.

TUESDAY, OCTOBER 15

10 A.M.—PLANT CONFERENCE—Waldorf Room. HERMAN P. SIEBKEN, *Presiding.* GREETINGS FROM THE USITA, DONALD C. POWER, President; REPORT OF PLANT COMMITTEE, HERMAN P. SIEBKEN, Chairman; CAUSES AND CURES OF INDUCED NOISES, P. K. FUGATE; LINE ROUTINING, R. K. GHORMLEY; RURAL DISTRIBUTION WIRE MAINTENANCE, OTTO KINSEL; MISS TELEPHONE SERVICE, J. R. YEAGER; THE VOICE BENEATH THE SEA, Motion Picture Provided by Illinois Bell Telephone Co.

10 A.M.—TRAFFIC CONFERENCE—Beverly Room. HERMAN KLEINHAMMER, *Presiding.* GREETINGS FROM THE USITA, CLIVE W. HAAS, Vice President; REPORT OF TRAFFIC COMMITTEE, HERMAN KLEINHAMMER, Chairman; OVER SIXTY IN TRAFFIC, LLOYD W. CLEVELAND; ARE TELEPHONE OPERATORS HUMAN?, ALLAN R. STACEY; THE BOTTOM LINE, W. A. PITBLADDO.

2 P.M.—INDEPENDENT TELEPHONE PIONEER ASSOCIATION—Grand Ballroom. RALPH F. LUCIER, President, *Presiding.* BUSINESS SESSION, Report of Executive Secretary and Treasurer, MAYME WORKMAN; ELECTION OF OFFICERS; ENTERTAINMENT.

7:30 P.M.—ANNUAL USITA BANQUET—Grand Ballroom.

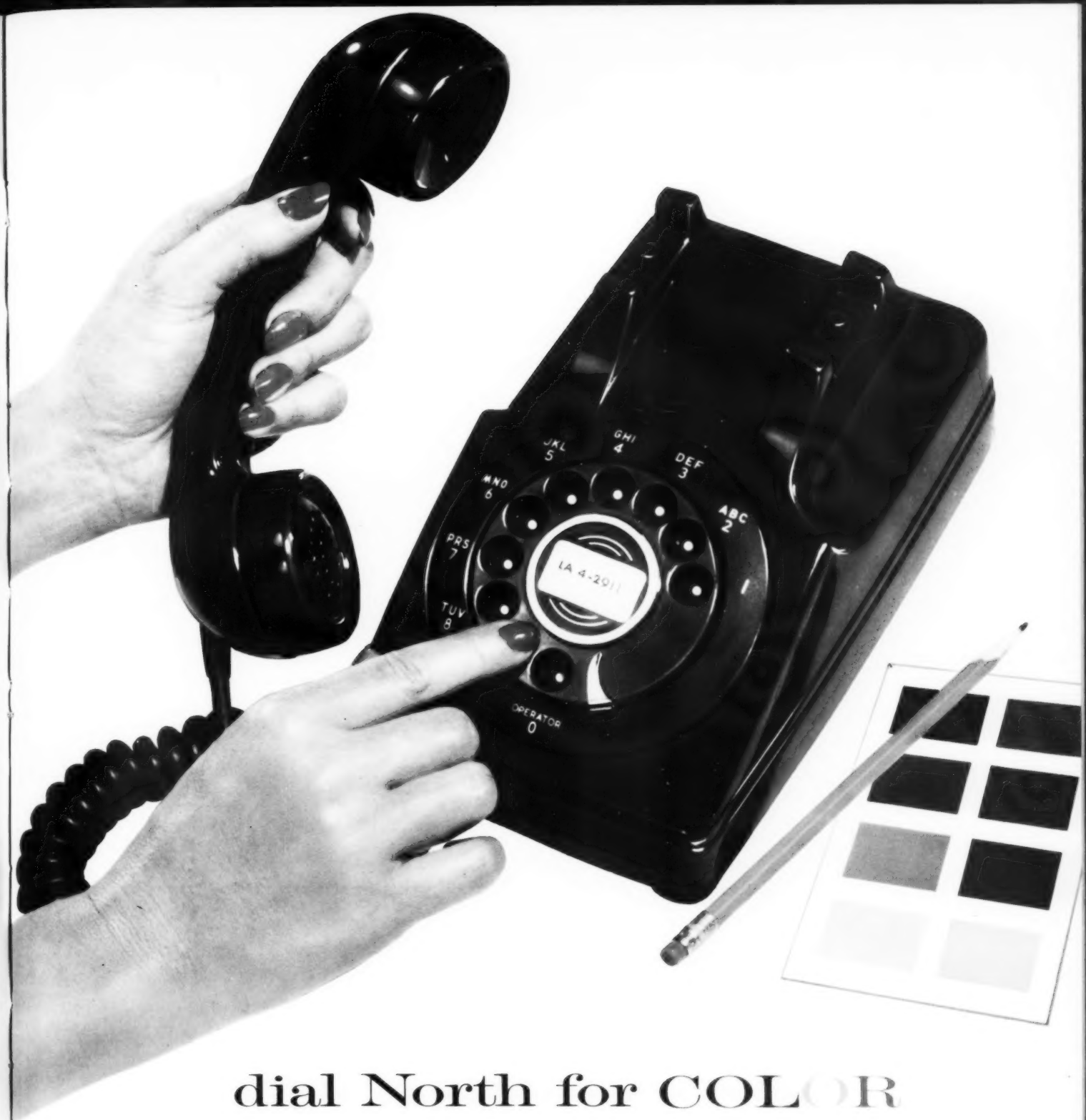
WEDNESDAY, OCTOBER 16

10 A.M.—GENERAL SESSION—Williford Room. PRESIDENT DONALD C. POWER, *Presiding.* REPORT OF NOMINATING COMMITTEE, L. D. DENSMORE; REPORT ON SPECIAL COMMITTEE ON AMENDMENT OF THE BY-LAWS, R. A. LUMPKIN; CLOUDS OVER TELEPHONE FAIR RETURN, JOHN F. CHILDS; THE PLACE OF INDEPENDENCE IN A COMPLEX WORLD, THEODORE R. MCKELDIN, Governor of Maryland.

2 P.M.—MEETING OF STATE ASSOCIATION SECRETARIES.

THURSDAY, OCTOBER 17

10 A.M.—MEETING OF STATE ASSOCIATION SECRETARIES.



dial North for COLOR

North Color-tone Telephones represent the ultimate in style, color and transmission and reception quality. North design, engineering and production quality control make these the finest standard desk-type instruments available to the Independent Telephone Companies of America.

Order from stock in Indian Ivory, Tawny Green, Chartreuse Yellow, Emperor Blue, Richland Red, Coral Sand and Executive Gray.

NORTH ELECTRIC COMPANY

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charm – beauty – convenience

make the *Ericofon*® the choice of millions

Wherever the Ericofon has been shown, people have acclaimed its charm, beauty, convenience and light weight. At scores of public showings all over the country, thousands have praised the Ericofon and asked for it!

Now, full color advertising in Ladies Home Journal and House & Garden has shown the Ericofon to millions! Already, the demand for Ericofons is being heard from coast to coast. Modern homemakers want this exciting new telephone—and you can supply it to them.

Ericofons, in all six colors, are available for immediate delivery from stock.

Order Ericofons now! Remember, the Ericofon is available only from—

NORTH ELECTRIC COMPANY

601 SOUTH MARKET STREET • GALION, OHIO

mother's little helper and father's, too

In the kitchen, laundry, garage, shop or hobby room where working space is at a premium, the North Wall Phone fits perfectly to provide the convenience of an extension without taking up vital counter, table or bench space.

The North Wall Phone, designed and built as a Wall Phone, is a space saver and a step saver—no more running from the kitchen to answer the phone—it's right there at hand—positioned on the wall at the most convenient height (out of reach of tiny tots, too).

North Wall Phones are available in the full range of North Color-Tone colors—add sparkle as well as convenience to every working area.

NORTH ELECTRIC COMPANY

601 SOUTH MARKET STREET • GALION, OHIO

60 Years

OF PROGRESS

On this 60th anniversary of the United States Independent Telephone Association, it is fitting to reflect on the enviable achievements of the Independent Telephone Industry. Since 1897, the Telephone Industry has met the challenge of the changing times with much foresight and resourcefulness. In keeping pace with the urgent demands of a free and rapidly expanding economy, Independent Telephony has contributed immeasurably to our American way of life.

L. M. Berry and Company is happy to commemorate this occasion because we are proud to have served the Independents in the field of Telephone Directory Advertising for 47 years . . . and to have become an integral part of the Telephone Industry and its progress. Every year since 1910, we have enjoyed a closer relationship with Independent Telephony as more and more Independent Companies have found greater satisfaction, profits, and convenience in our services. We are most grateful to the Independent Telephone Industry for giving us the opportunity of sharing in its contributions and growth.

○○○○

We invite you to see our exhibit at the USITA Convention, in Room 556-A, Conrad Hilton Hotel, Chicago, Illinois.

○○○○

L. M. BERRY AND COMPANY

Telephone Directory Advertising Exclusively

GENERAL OFFICES • HULMAN BUILDING • DAYTON 2, OHIO • MICHIGAN 7421

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SPEBSQSA quartets will entertain Independent Pioneers at annual meeting—The Mid-State Four (left), and Barber-Q-Four.

Pioneers to Hear SPEBSQSA Quartet

THE ANNUAL meeting of members of the Independent Telephone Pioneer Association will be held in the Grand Ballroom of the Conrad Hilton Hotel at 2 p.m., Oct. 15, during the USITA convention.

President Ralph F. Lucier will extend greetings and preside at the meeting.

Mayme Workman will present the annual executive secretary and treasurer's report. Chairmen of the association's auditing, resolutions, nominating and new members committees will present their reports.

Following the business session, an outstanding program of entertainment will be presented by the following quartettes from the Society for the Preservation and Encouragement of Barber Shop Quartet Singing in America (SPEBSQSA):

THE BARBER-Q-FOUR, international semi-finalists.

THE MID-STATE FOUR, past international champions.

Berney Simner, past national president of SPEBSQSA will MC the program.

The Pioneers will elect three directors to succeed Mr. Lucier, Kelley McNish of Bristol, Tenn., and Samuel F. Nixon Sr. of Westfield, N. Y., whose terms expire this year, and 16 new members of the Association's Advisory Committee.

Other directors of the association are George Hamburger of Washington, D. C., Miss E. M. Hiestand of Madison, Wis., W. F. Miller of Des Moines, Ia., R. N. Cole of Marion, O., D. B. Corman of New London, Ky., and W. P. Strichenburg of Meadville, Pa.

Association officers, in addition to President Lucier are: Vice presidents, Mr. McNish and Mr. Nixon, and executive secretary-treasurer, Mayme Workman of Springfield, Ill.

BERNEY SIMNER

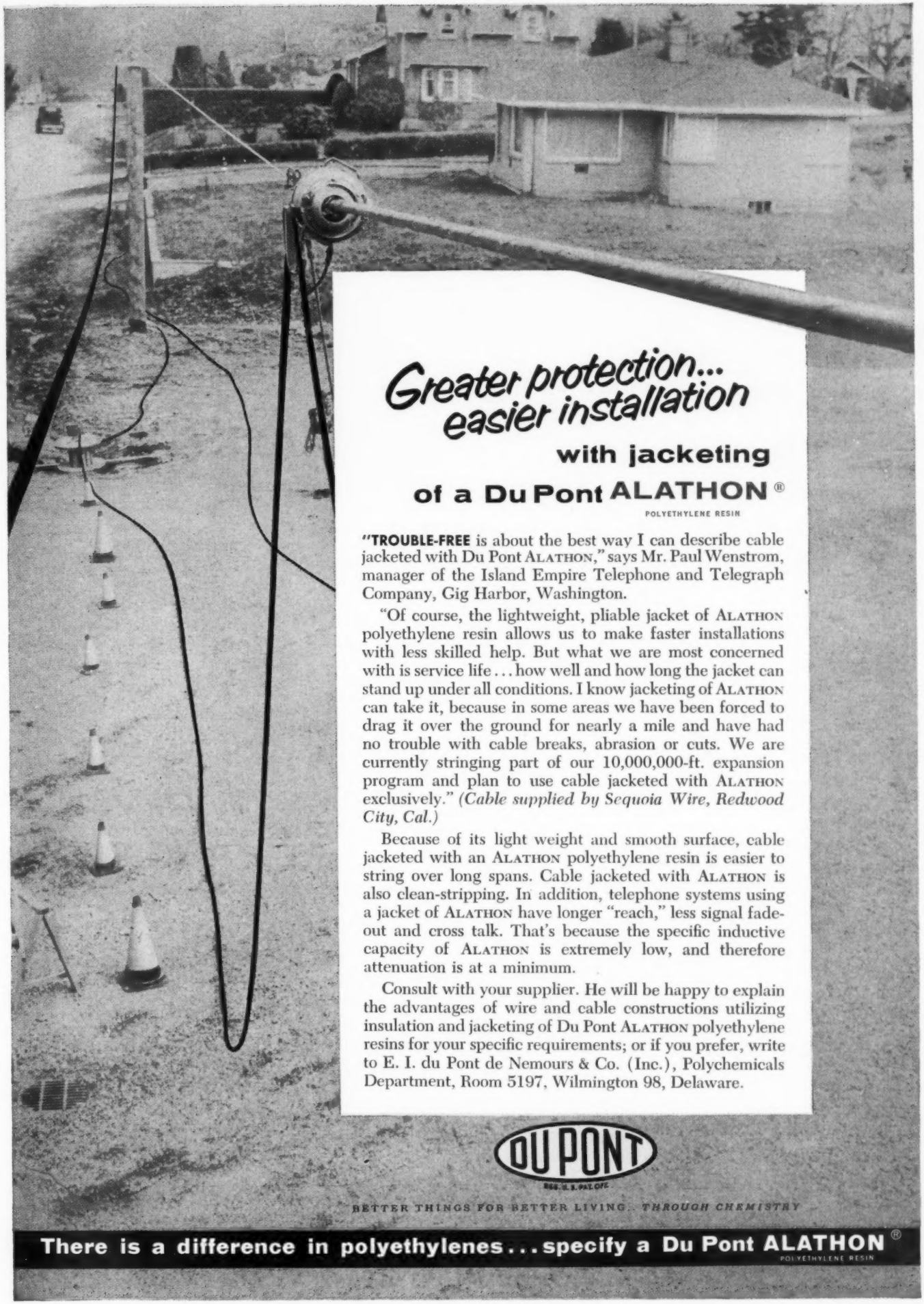
Any man or woman with 15 or more years of service in the Independent telephone industry, operating or manufacturing, is eligible for membership in the association. Telephone and manufacturing companies are eligible for associate memberships.

The Pioneer lounge—Room 535-A—in the Conrad Hilton Hotel will be open to Pioneers and visitors during the USITA convention.

The bi-annual Pioneer Roster is being published this year and members of the association are urged to pick up their copies at the Pioneer lounge.

The Pioneer association was organized on June 16, 1920 at Winona Lake, Ind., when J. K. Johnston, for many years secretary of the association, drew up a petition to form the organization to perpetuate the traditions and ideals of Independent telephony. He secured 74 signatures.

Today the association has a membership of over 4,400. It is reported that the New Members Committee, headed by Mr. Simner, will report at the annual meeting that it has secured more than 200 new members since the 1956 meeting.



Greater protection... easier installation

with jacketing of a Du Pont ALATHON®

POLYETHYLENE RESIN

"TROUBLE-FREE is about the best way I can describe cable jacketed with Du Pont ALATHON," says Mr. Paul Wenstrom, manager of the Island Empire Telephone and Telegraph Company, Gig Harbor, Washington.

"Of course, the lightweight, pliable jacket of ALATHON polyethylene resin allows us to make faster installations with less skilled help. But what we are most concerned with is service life . . . how well and how long the jacket can stand up under all conditions. I know jacketing of ALATHON can take it, because in some areas we have been forced to drag it over the ground for nearly a mile and have had no trouble with cable breaks, abrasion or cuts. We are currently stringing part of our 10,000,000-ft. expansion program and plan to use cable jacketed with ALATHON exclusively." *(Cable supplied by Sequoia Wire, Redwood City, Cal.)*

Because of its light weight and smooth surface, cable jacketed with an ALATHON polyethylene resin is easier to string over long spans. Cable jacketed with ALATHON is also clean-stripping. In addition, telephone systems using a jacket of ALATHON have longer "reach," less signal fade-out and cross talk. That's because the specific inductive capacity of ALATHON is extremely low, and therefore attenuation is at a minimum.

Consult with your supplier. He will be happy to explain the advantages of wire and cable constructions utilizing insulation and jacketing of Du Pont ALATHON polyethylene resins for your specific requirements; or if you prefer, write to E. I. du Pont de Nemours & Co. (Inc.), Polychemicals Department, Room 5197, Wilmington 98, Delaware.

DU PONT

REG. U.S. PAT. OFF.

BETTER THINGS FOR BETTER LIVING . . . *THROUGH CHEMISTRY*

There is a difference in polyethylenes . . . specify a Du Pont ALATHON®

POLYETHYLENE RESIN

"This refers to yours of the 10th..."

Some people still hammer out communications one character at a time.

Others use DATAFAX—the fast Stewart-Warner electronic way to transmit all data over standard telephone lines.

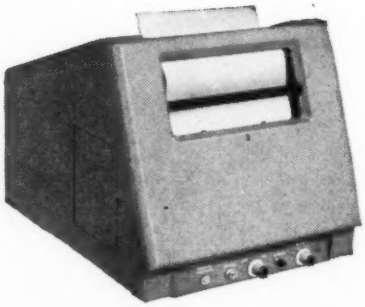
Datafax transmits and records any material: correspondence, drawings, pictures, printed matter, even handwritten notes. And since copies are exact duplicate images of the original, chance for error is eliminated.

Cost?

Automatic transmission and recording eliminate need for full-time operator; recorders will even respond to transmissions sent after the office is closed for the day. Datafax also eliminates retyping, proofreading, intermediate handling, intransit delays—and their clerical costs. The clear, smudge-proof, permanent Datafax copy costs less than 2¢ for a letter-sized unit, plus pro rata line charge.

Chances are your accounting...inventory control...engineering...production...branch sales...and warehouse operations have outgrown Stone Age Communications. If so, you'll want to find out about Datafax.

First, send for your copy of the free Datafax bulletin. Write: Stewart-Warner Electronics, Dept. 24, 1300 No. Kostner Ave., Chicago 51, Illinois.



STEWART SW WARNER **ELECTRONICS**

a Division of Stewart-Warner Corporation

Courts and Commissions

Upholds City Rate Powers, "Fair Value" in Iowa

The Iowa Supreme Court on Sept. 17 upheld the right of Iowa cities to set public utility rates; specified cities must use "fair present value" in setting the rates, and added that the courts can overrule "unjust" rates.

(There is no commission in Iowa that regulates rates of telephone companies or utilities, that power having been delegated to the state's municipalities.)

The high court made the statement in a decision handed down in the bitterly contested rate case between the Iowa-Illinois Gas & Electric Co. and the city of Fort Dodge.

A court spokesman said the decision should serve as a basis for rate-setting throughout Iowa. It was the first utility regulation decision handed down by the Iowa Supreme Court since 1909.

The decision said city councils must use "fair present value" of the utilities in determining what would be a fair return through rates on a company's investment.

The high court did not question the cities' right under Iowa law to set rates, but did set up the procedure they must use in determining them.

The "fair present value" of a utility would be a figure between original cost and replacement cost, with the greater emphasis on present day replacement costs, the opinion said.

A district court judge named Uhlenhopp said the old rate was "confiscatory" and the city's rates should give a 6 per cent return.

The high court in a unanimous opinion written by Justice Robert L. Larson, upheld Uhlenhopp's injunction but said greater weight should be placed on present day construction costs to determine "fair present value."

Minn. Officials Question Highway Relocation Law

Belief that a court test may be necessary to determine the validity of a 1957 Minnesota law providing for reimbursement of utility companies for moving their facilities when necessitated by construction of interstate highways was expressed by state officials following a conference on Sept. 11 in the office of State Attorney General Miles Lord.

The new state law authorizes the State Highway Department to pay from state funds 10 per cent of such utility relocation costs, with the federal government to meet the 90 per cent balance.

Deputy State Attorney General Robert W. Mattson pointed out, however, that the federal government will not make any such reimbursements unless the state certifies that such payments are legal under the state constitution. It is this point which will require clarification, it was explained.

Michigan Bell Requests Further Rate Revision

An upward revision of a $2,835,000 annual rate increase granted Aug. 6 by the Michigan Public Service Commission was asked on Sept. 11 by Michigan Bell Telephone Co. (TELEPHONY, Aug. 24, p. 47).

In an application for a hearing on the new proposal, company president William M. Day said 60 million dollars worth of planned improvements might have to be deferred unless another rate increase is allowed.

The company had applied last fall for a rate boost of 12½ million dollars. It said the amount granted was based on data on company finances that now are obsolete.

The company also asked the commission for approval of a 40 million dollar issue of debentures to retire demand notes already incurred on past and current construction projects. The proposed debentures, with maturities up to 40 years, would be offered at public bidding on Nov. 18.

Four Minnesota Companies Secure Rate Relief

Schedules of increased rates, approved on Sept. 16 by the Minnesota Railroad & Warehouse Commission applied to these companies:

Albany Mutual Telephone Association.
Deer Creek Telephone Co.
Floodwood Telephone Co.
Forreston Telephone Co.

The Albany mutual serves 924 stations (476 local and 448 rural) from exchanges at Albany, Freeport and New Munich, and offers two-way extended area service between Albany and Freeport and between Freeport and New Munich. Under approved rates, operating revenues are to rise from $49,894 to $61,024, and net income from $10,283 to $20,044, a 5.13 per cent return on the $406,361 rate base. New rates are:

Business:	
One-party	$7.50
Two-party	6.50
Rural multi-party	5.00
Residence:	
One-party	5.00
Two-party	4.25
Four-party	3.50
Rural multi-party	4.25
Switching service	1.50

New Deer Creek company rates replace those in effect since 1940 when its exchange, now serving 66 local and 121 rural stations, was converted to automatic operation. The increases will afford a 5.70 per cent return on the $33,209 rate base, and will raise operating revenues from $9,296 to $11,024, and net income from $832 to $1,893. Approved rates are:

Business:	
One-party	$6.00
Two-party	5.25
Rural multi-party	5.00
Residence:	
One-party	4.00
Two-party	3.25
Four-party	2.75
Rural multi-party	3.75
Mileage charge for service beyond the base rate area, each ⅛ mile or fraction thereof:	
One-party	.30
Two-party, each subscriber	.20
Four-party each subscriber	.15

Operating revenues for the Floodwood company are expected to increase from $14,809 to $16,823, and net income from $2,601 to $3,133, a 5.52 per cent return on its rate base of $56,742.

(Please turn to page 78)

Exhibitors At National Convention

Modern and up-to-date telephone equipment and supplies will be on display at the coming USITA convention. Independent manufacturers and suppliers can and do render vital assistance and advice to operating companies in solving their problems. Be sure and visit them in their display rooms, listed alphabetically below. This list was furnished by the USITA Manufacturers Exhibit Committee and is complete as of Sept. 24.

Acme Visible Records Inc. . . . . 632—637
Addressograph-Multigraph Corp. 522
Anaconda Wire & Cable Co. 659
Ansonia Wire & Cable Co. 547
Audichron Co., The 636-A
Automatic Electric
Sales Corp. . . . . 504—505—507—509
602—610

Walt Barber Advertising Specialties 634-A
W. M. Bashlin Co. 530-A
Benner-Nawman, Inc. . . . . 639-A—640-A
L. M. Berry & Co. 556-A
Bohnsack Equipment Co. 633-A
Blaw-Knox Co. 629-A
Buckeye Telephone & Supply Co. 532-A
Budelman Radio Corp. 655-A
Burroughs Corp. 613

C & D Batteries Inc. 536
Cable Spinning Equipment Co. 556
Caterpillar Tractor Co. 624-A
A. B. Chance Co. 521-A
T. A. Clifford Co. . . . . 614-A—615-A
Collins Radio Co. 661-A
Communication Equipment &
Engineering Co. 524-A
Comptometer Corp. . . . . 651-A—653-A
Connecticut Telephone & Electric Corp. . . . 653
Cook Electric Co. 539-A
Copperweld Steel Co. 542-A

Electric Specialty Co. 609-A
The Electric Storage Battery Co. 528-A
The Everstick Anchor Co. 539

General Telephone Directory Co. . . . . 561—601
Gladwin Plastics, Inc. . . . . 628—629
Gould-National Batteries, Inc. 537-A
Graybar Electric Co., Inc. . . . . 617—619

Henkels & McCoy Contractors 657-A
Gustav Hirsch Organization 557-A
Holtzer-Cabot 612

Independent Telephone
Pioneer Association . . . . . 535-A—536-A
International Business Machines Corp. 553

Johns-Manville Sales Corp. 620

Kellogg Switchboard &
Supply Co. . . . . 500—501—502

Leich Sales Corp. . . . . 512—513—557
Lindsay Telephone Supply Co. 617-A
Lorain Products Corp. 515-A
Lynch Carrier Systems, Inc. 618

McCabe-Powers Auto Body Co. 548-A
Motorola Communications &
Electronics, Inc. 661

National Carbon Co. 553-A
National Standard Co. 634
National Telephone Supply Co. 550-A
Neale Construction Co. 626-A
North Electric Mfg.
Co. . . . . 517-A—519-A—520-A—526-A

Permanent Mold Foundry, Inc. 628-A
Phelps Dodge Copper Products Corp. 521
Philco Corp. 600
Plastic Wire & Cable Corp. 657
Preformed Line Products Co. 614

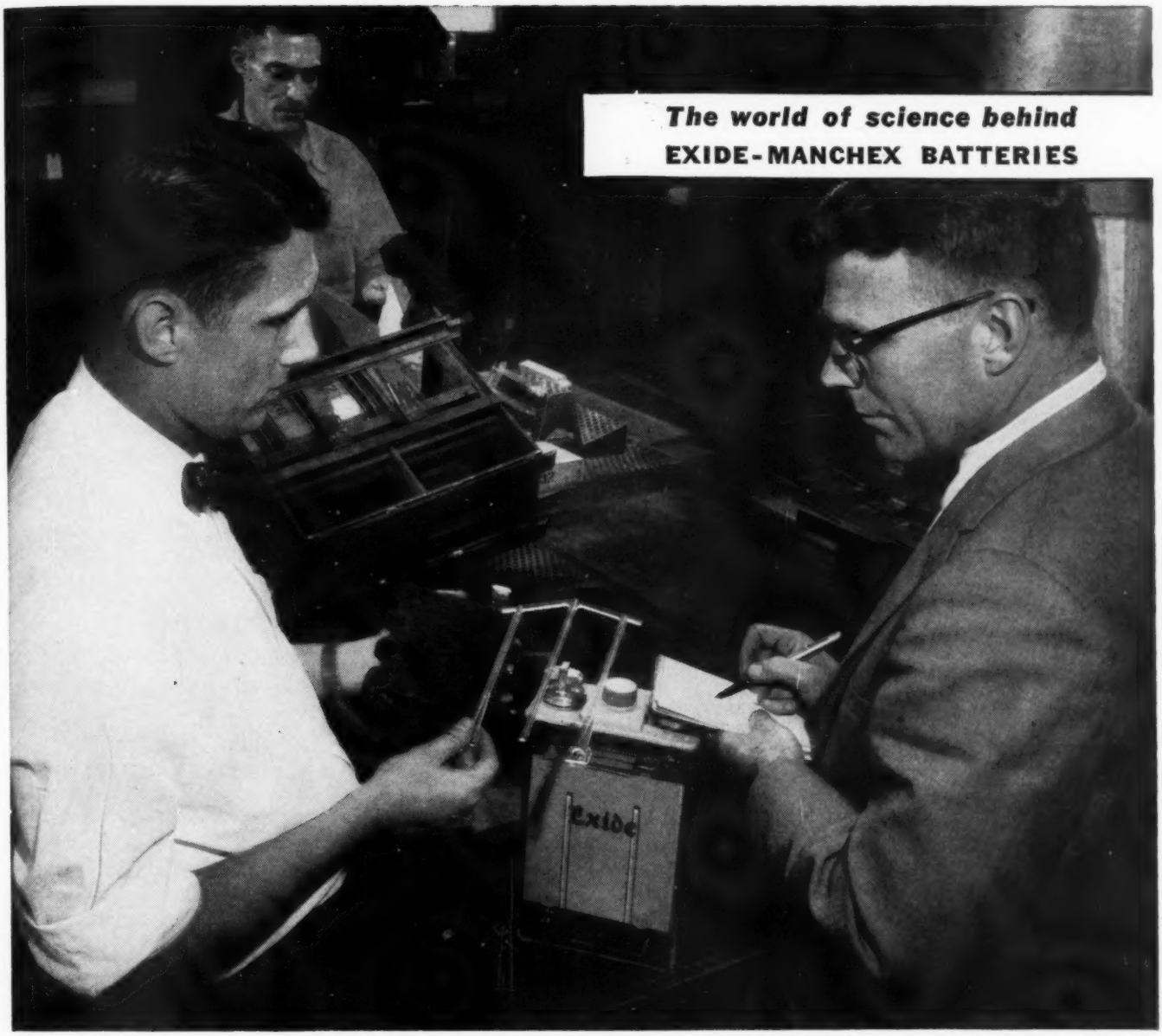
Ramset Fastening System 616-A
Raytheon Mfg. Co. 551-A
Recordak Corp. 659-A
Reliable Electric Co. . . . . 512-A—513-A
Remington Rand Co. . . . . 544-A—546-A
Rex Corp., The 637-A
John A. Roebling's Sons Corp. 636
Runzel Cord & Wire Co. 561-A

S & G Mfg. Co. 622
Schauer Mfg. Corp. 537
Sherron Metallic Corp. 560
Stromberg-Carlson
Co. . . . . 504-A—505-A—507-A—509-A
Superior Cable Corp. 655
Suttle Equipment Co. . . . 523—529—533—611-A

Tel-E-Lect Products, Inc. 621-A
Telephone Engineer Publishing Corp. 560-A
Telephone & Power Supply Co., Inc. 611
Telephone Repair & Supply Co. 516
Telephony Publishing Corp. . . . . 533-A—534-A
Tele-Wire Supply Co., Inc. 549
Thornhill Publishing Co. 633
Tower Construction Co. 658-A

United Electric Controls 616
United States Instrument Corp. . . . 619-A—620-A
United States Motors Corp. 602-A
Universal Controls Corp. 631-A
Utility Service Co., Inc. 635-A

Whitney Blake Co. 534
Wyoming Valley Equipment Co. 613-A

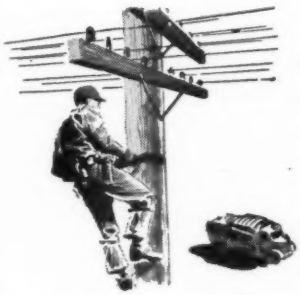


The world of science behind
EXIDE-MANCHEX BATTERIES

Being interviewed is E. L. Daniels, Jr., development engineer

"These wide open spacers boost battery power"

At the Exide Laboratories—**Reporter:** When is it most important for a battery to have maximum power, Mr. Daniels?



Daniels: Under short, heavy loads—such as when equipment is switched on or off.

Reporter: How do the wide open spacers help?

Daniels: By providing a shorter, more direct current path between the plates. Hence the internal resistance of the battery is reduced. This is reflected in improved voltage, increased current capacity, and less heating under load.

Reporter: Are there any other advantages to these spacers?

Daniels: Yes, electrolyte has easier access to plates for better constant load battery performance. And the open spacers allow used active material to fall more readily to the bottom of the jar.

Reporter: Obviously, this is an important feature of Exide-Manchex Batteries.

Daniels: Yes it is. But it's only one of the many engineering details that contribute to their long life and high performance.

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60 Years of Progress in Plant

By Ray Blain, Telephony's Technical Editorial Director

IN THE EARLY years of telephony, the Bell companies always exerted an all-out effort to make a profit for their stockholders, and they were reluctant to provide service in areas where profits were questionable. As a result of this philosophy, the larger cities were their first choice and those of lesser rank followed as their program expanded. The smaller towns and farming areas were regarded as barren territory by the Bell. It is of record that for many years after the Independents came into the picture, the Bell refused to construct lines in farm areas.

This, then, was the area in which the Independents came into being when the Bell's basic patents expired in 1893 and 1894. During this period of our country's development, life on the farm was an isolated existence. Farm families possessed no rapid means of communication with the outside world. The doctor was as many hours away as were required to reach him on horseback or by horse-drawn vehicle. Travel was over roads that were inches deep in dust during dry weather and practically impassable due to mud in periods of rain. Severe illness and accidents resulting in fractures and wounds had to be treated by members of the household as best they could until the physician arrived.

Fires, too, were an ever-present danger in the village and on the farm. In most communities, the flames had to reach a height that could be seen for a considerable distance at which time the neighbors would hitch up their teams and travel to the scene of the fire to render what help they could. House and farm buildings were usually in ashes when they arrived. At that time, it was practically impossible to obtain insurance on farm buildings.

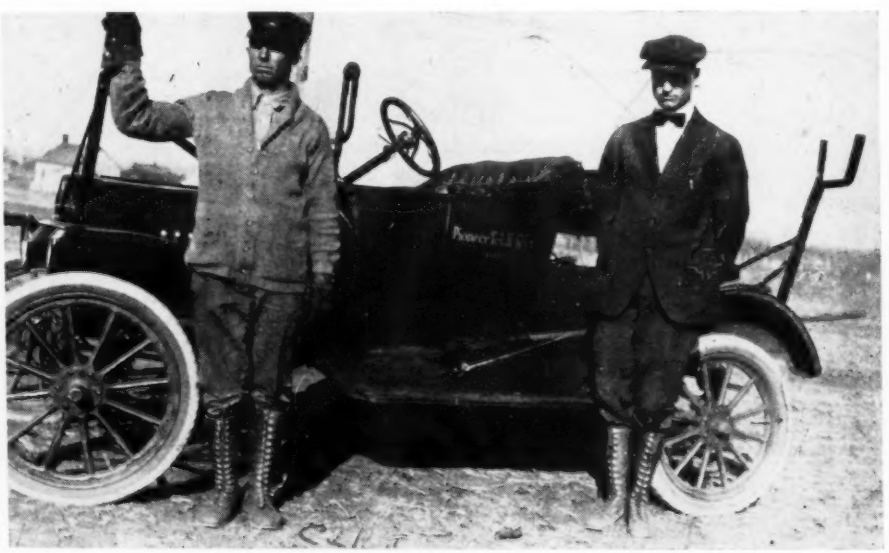
Farm life in most areas of that era was most monotonous. In bad weather or in the busy seasons it might be weeks before farm families could visit their neighbors or the nearest towns. The small towns were dull, also, and actually were merely large families. In most cases, however, they did have the advantage of a railroad and a telegraph line. They were, therefore, somewhat better equipped to cope with emergencies than were the farm folk of that period.

Into this gloomy scene the Independent telephone was received as a blessing. And with it came the beginning of a more enjoyable and worthwhile life to residents of these remote areas. Their isolation was broken down as their contact with neighbors and towns became instantaneous. Later, of course, came the automobile and good roads, radio, movies and the daily paper from the county seat. These all served to improve conditions until, today, farm life has many advantages not enjoyed by the average city dweller.

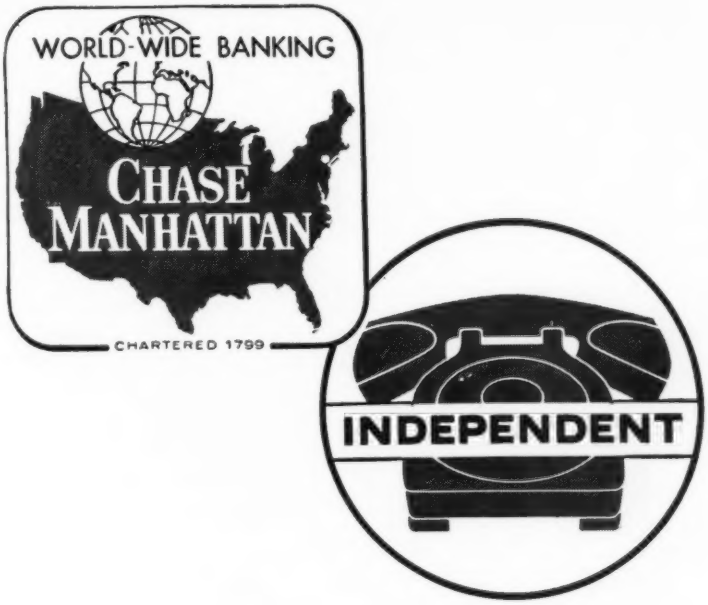
It has often been said that the Bell worked from the top down, and the Independents from the bottom up. This is explained by the fact that the Bell organized the larger centers of population first and expanded from them. The Independents started among the farms and villages and extended their lines toward and, in many cases, into the cities.

This is explained by the fact that the Bell was first in the field, and had first choice of territory. Moreover, the Independents lacked the financial backing necessary for large operations. During this period, capital was usually obtained by the Independents pretty much on a "pass-the-hat" basis. A few men in a telephone-less town would decide to construct a system but lacked the necessary capital. Then the merchants, the doctor, the lawyer, the blacksmith and the livery stable owner, would be canvassed until enough cash had been pledged to buy equipment.

In some cases, neighboring farms would be furnished service by extending lines from the towns. In others, farmers would form a group, pool their resources, buy wire and telephones and



The Model T Ford was one of the first cars used in telephone trouble work. The author is on the right.



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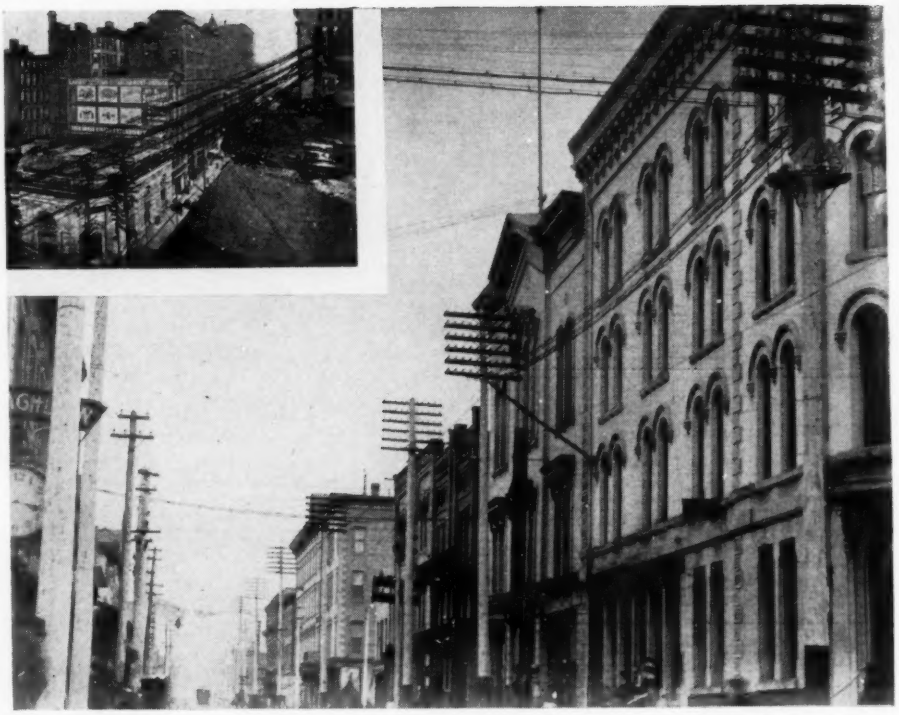
install their own lines. Some of these early farm lines did not have connections with town; some did not even construct lines, but would simply use any convenient barbwire fence. These lines worked fairly well in dry weather but during rainy periods the service was nil.

It must be remembered that when the Bell's patents expired and the Independent telephone industry came into being, the country was in the grip of the big depression, or panic, of the nineties. Factories were closed, business failures were numerous, unemployment was widespread—and they didn't have a WPA. This is considered ample proof that the Independent industry was from the very beginning endowed with a firm determination to progress despite these handicaps.

Association Formed in 1897

Soon after the Bell's patents expired, numerous Independent manufacturers of telephone equipment entered the field. During this period, also, numerous operating companies came into being and in 1897 the National Independent Telephone Association was formed. The objectives of the association at that time was "to plan joint resistance to any aggression of the American Bell Telephone Co." and to decide upon a united attitude in the matter of the then annoying Berliner patents and to take up matters affecting Independent telephone companies. This organization was the forerunner of the present United States Independent Telephone Association (USITA).

Down through the years, the Independent telephone industry has been responsible for numerous major technical advances in the field of communications. Perhaps the most important of these is the automatic switching system that is today extensively used throughout the world. The first practical dial telephone system was invented by Almon Brown Strowger, a Kansas City business man, and its first commercial application made its appearance in an Independent exchange at La Porte, Ind., over 60 years ago.



Fifty and 60-foot poles laboring with wire laden crossarms "marched down" city streets in the early days. Many of these towering pinnacles, crowned with circle top distributing terminals, contributed their avalanche of umbrella-like drop wires to the fantastic hodgepodge.

The telephone using public is also indebted to the Independent industry for the development of the handset type telephone, and for the first direct operator dialing over long distance lines. The second automatic ticketing system placed in service in this country was in an Independent exchange and the product of an Independent manufacturer.

Independents can be credited with many "firsts" in the design and invention of equipment and techniques.

Independent telephony is a wonderful success story, but youngsters coming into the industry today should understand that the battle was not won without a struggle. The many changes brought about have been due to the untiring efforts of the good men and women in the industry. Many of these people could have made more money in some other endeavor, but they "loved the game" and stuck to it through thick and thin and finally won out.

Cut and Try Rules

In the early days, green men were hired and started on the job without any training. Specifications and work methods were sketchy and often nonexistent. Cut and try was the rule and standards were unknown. Safety programs were not in the picture and the accident rate was high.

New men were generally hired as "grunts" or "ground hogs," as they were called. These men dug holes, helped pike-in poles and then tamped them. They did all of the rough work and acted as helpers for the linemen. After a time, the most promising of the "grunts" were offered a chance to climb and learn to be linemen. No one would teach them any of the rules of climbing as it was considered great sport to watch them fall or "burn a pole" as it was called.

If the falling grunt hugged the pole

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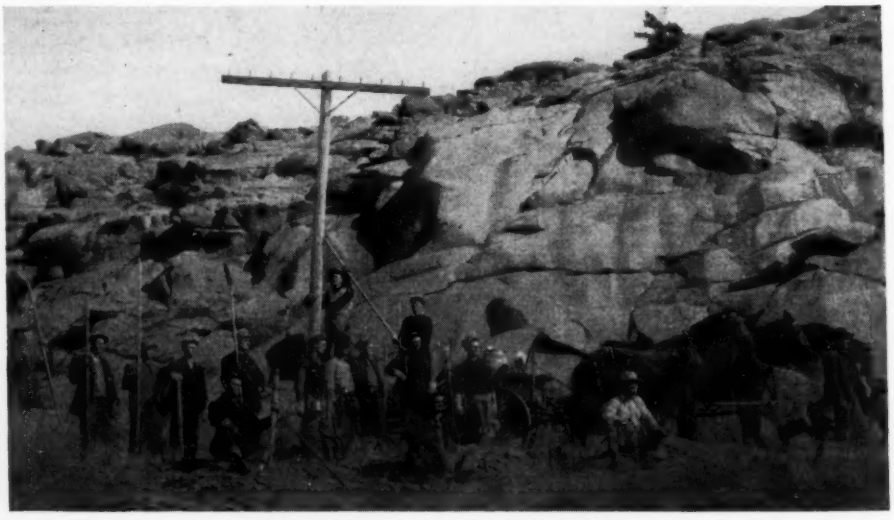
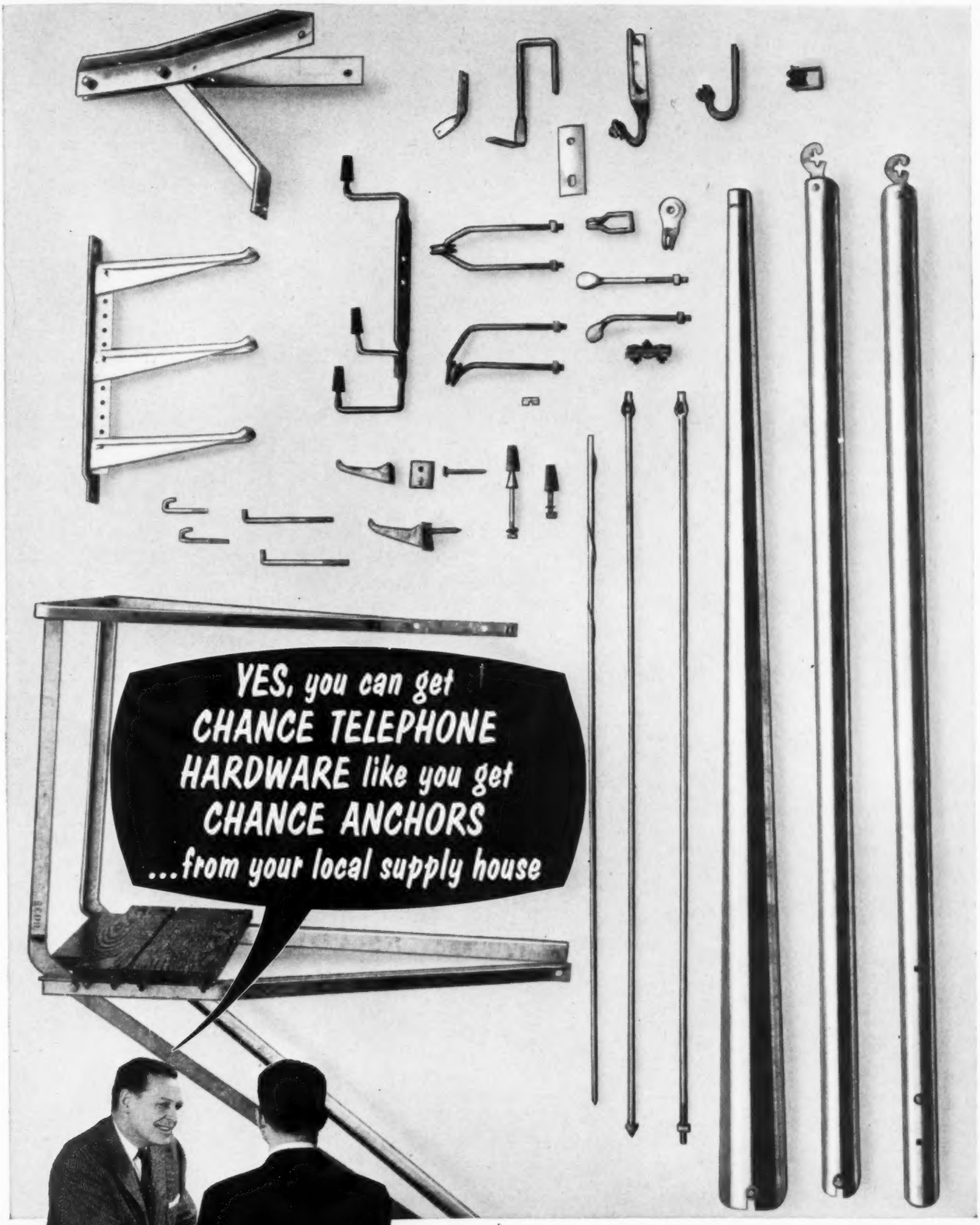


A line construction crew in the old days.



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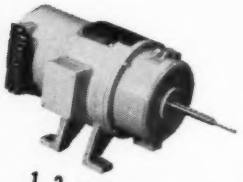
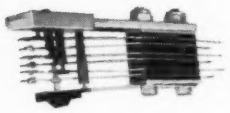
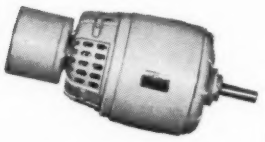


1, 2, or 3-tone Motor-Alternator



Screw Adjusted Pile-ups



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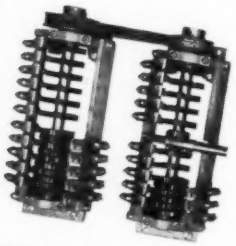

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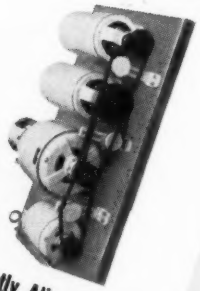

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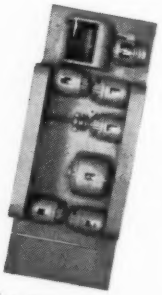

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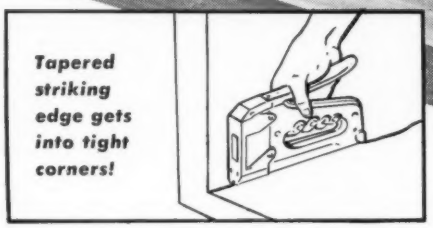

Tapered striking edge gets into tight corners!

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- T-75 tacker holds 9/16", ⅝" and ⅞" tack-pointed, rosin-coated staples, a full ½" in width
- Fastens 21 pair inside wiring cable, 26 pair, 12 pair wires, etc.
- Has all above mentioned Arrow features (except tapered head) to insure maximum speed and efficiency of operation!

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and scraped the skin off his cheek and picked up a good crop of splinters in his pants, that was considered good fun. If he stuck it out and survived the falls until he learned the tricks of the trade, he would eventually develop into a fair lineman. Linemen in those days owned their own belt tools.

This has all been changed and today the proper training of plant men is receiving every consideration. Many of the larger companies are conducting their own plant schools. In these schools the men learn by doing—generally recognized as the best method in training—and are under the direction and supervision of experienced instructors. These men acquire more useful knowledge in a few weeks attending one of these schools than would have been possible in years of work on the job.

Transportation for telephone construction forces used in the old days and at the present time presents a marked contrast. When the writer began in telephone work for the Old Pioneer Telephone Co., down in Oklahoma back in 1913, most telephone installers in the small exchanges walked and carried their tools and materials.

Imagine a man carrying a big magneto telephone, three dry cells, a coil or wire, a ground rod and necessary tools. It was a load that would discourage a pack mule. When an extra long line had to be strung, or a pole or two set, a local drayman was hired to transport the material to the job. In some cases, a man would make two or more trips on foot to get all of the required material to the average installation.

Then, later, the company did something really fine for us. They provided two-wheeled push carts with the company's name on each side. This was much easier than carrying the material when sidewalks were available. Out where the sidewalks ended and we had to take to unpaved and sandy streets, real man power was required to push the carts. We generally attempted to borrow ladders in the neighborhood and some of these were not safe, but at that time we had not heard of "safety first" or accident prevention.

Drop Wagons Introduced

In the larger exchanges drop wagons were provided and hauled by horses. These were not bad as they were a long bodied affair with a seat up in front for the driver. A large umbrella was usually provided over the seat for protection from sun and rain. Tool boxes were arranged along one side and a ladder rack along the other. Ample space was provided to haul necessary sub-station installation material. The horse was turned in each evening at a local livery stable.

The first motor vehicles we used were Model "T" Fords of the roadster type. They were not equipped with a tool box of the type used on light installation trucks today, but they did have a ladder rack on one side. The seat was protected with a folding top that was a carry-over no doubt from the old buggy days. These cars did a marvelous job, when we consider the terrible roads of that day and the loads that the cars were required to haul. The company was very strict with these first cars and required that they have special care at all times. A mechanic from the district office visited us about once a month and gave each car a careful inspection. We were required to keep them neat and clean always, even to washing the outside of the engine at regular intervals with kerosene.

One front wheel of each car was equipped with a mile counter that was sealed. We were required to carefully note and record the miles traveled on each case of trouble. When we took a joy ride at night we always jacked up the front wheel equipped with the counter and ran it backward by hand to reduce the mileage to a figure that would appear correct on the report.

No Portal-to-Portal Pay

Transportation for the large construction crews used in the old days was always a problem. This was especially true on toll line jobs. In most cases, a long wagon with a low bed was used. A tool box was placed on the front end as a seat for the driver. The men sat along the sides of this uncovered wagon and in stormy weather this proved most uncomfortable.

It was an accepted rule in those days to make the trip from the crew's lodging place to the job and back, half on the company's time and half on the worker's. We worked a 10-hour day and when two hours were required to get to the work and the same time to return in the evening, our day was 12 hours long—and sometimes longer.

We had not heard of portal-to-portal pay in those days. We also carried our lunch and ate it on the job. When we were working on a line a considerable distance from any town, we often obtained meals and lodging from farmers along the line. Most of the time we slept in haylofts or barns.

Later, high-wheeled trucks made their appearance for use of construction crews. These trucks caused much trouble, but were a great help when we could get them to run. Trucks were gradually improved until today they prove a real labor saver. A two-man crew with a modern construction truck, equipped with a pole derrick and an earth auger, can do more work than a 12-man crew could do in the old days. There is every probability that climbing poles with spurs may some day be discontinued.

Modern trucks are equipped with derricks so that a man in a crow's nest may, by manipulating controls, elevate himself to the proper height and then swing on the horizontal to reach his work. Added to this, the crow's nest is equipped with electric outlets so that power tools may be used at any point on the line. This arrangement is certainly safer, faster, and more economical than manual climbing and performing line work by old fashioned methods.

Adequate transportation for toll line trouble shooters also presented a real problem in the old days. We would first get a location on the trouble from the toll wire chief. Then we would ride a train—often a freight—to the station nearest to the calculated trouble location.

Then we hired a team and buggy from the local livery stable to travel the line and clear the trouble. This was not too difficult when an accurate location was made on the test. Often, however, we traveled the line for miles beyond where the trouble was supposed to be and frequently would be away from the home station for several days on one case of trouble.

Later on, we used motorcycles for toll line trouble shooting and that was a job to test any man's skill and endurance. Flying an airplane would be easy by comparison. We rode the high centers of the rutted roads of that region while watching the line for visual evidence of the trouble. Spills were frequent, but strange to say we were never hurt seriously. When the Model T Ford came along we retired the motorcycles with no regrets.

Used Train for Trouble Work

There was one experience this writer will never forget. I was stationed at Clinton, Okla., and in addition to helping with the local trouble, installation, central office trouble and doing janitor work, I also was required to shoot toll line trouble for over 50 miles in the four directions out of our exchange. One line was built along the right-of-way of the Clinton and Oklahoma Western Railroad for a distance of 55 miles.

We always referred to this railroad

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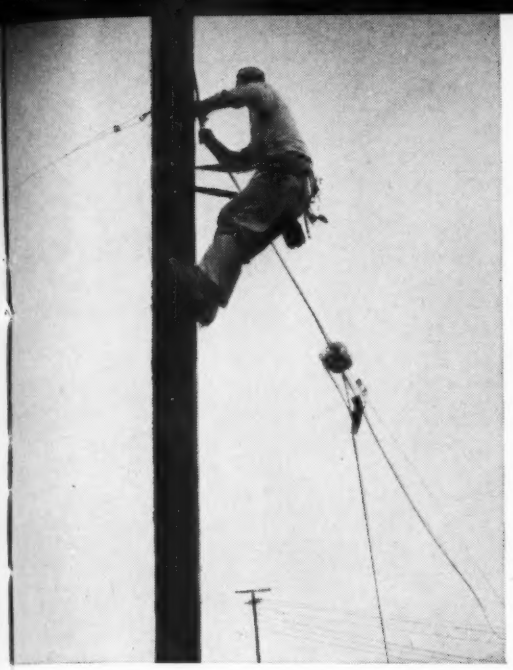

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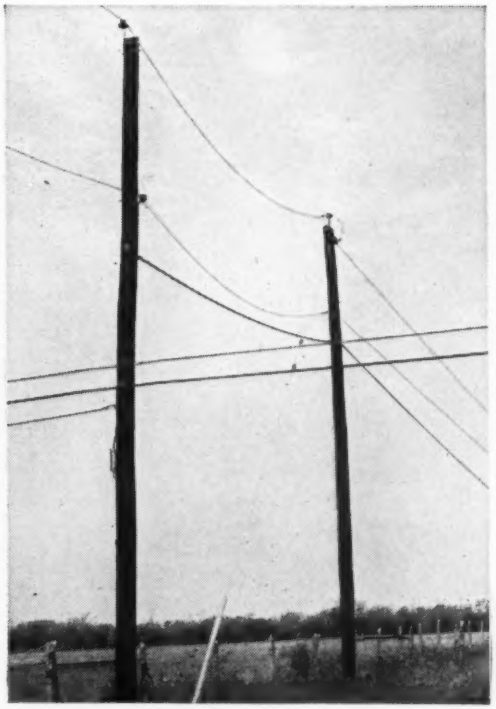

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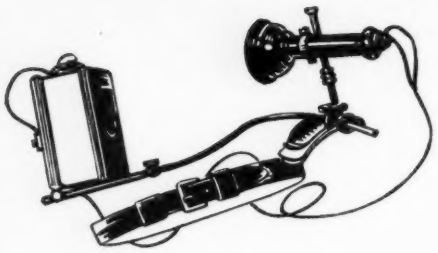


60 Years in Traffic

By MAYME WORKMAN, *Telephony's* Traffic Editor

THE WEEK of Sept. 8 was proclaimed "Independent Telephone Week" in commemoration of the 60th Anniversary Year of the United States Independent Telephone Association, an organization representing the Independent telephone industry in the United States.

Traffic folk in the Independent telephone industry congratulate the USITA on this auspicious occasion and hope the association will serve the Independent telephone industry for many more years.

In celebrating 60 years of Independent telephony, it is proper and fitting that we review the outstanding achievements of men and women in *Traffic*, the progress and development in operating methods, improvements in equipment, etc.

The writer can recall events during the past 50 years, and for the 10 preceding years, her first chief operator, and good friend—Miss Anne Barnes—supplied the data used during this era.

According to Miss Barnes, 60 years ago there was no night service in the telephone exchange in Springfield, Ill., and it is reasonable to assume this condition existed in telephone exchanges throughout the nation. There were three operators in the first exchange in Springfield, which was located over a wholesale liquor store. There were six positions of magneto switchboard of the shutter type. Not all calls could be completed on one pair of cords. A cord was inserted on a trunk and the number was called out loudly as, for example, "643 on 21." Imagine the confusion during busy hours—yes, they had them in that era, too.

Miss Barnes said when she started to work in the telephone exchange, an operator had to fight for her rights to stay on the job. She stated: "When an operator ran down to where you were sitting and shrieked at you, the way I finally won out was one day when I shrieked back, 'Who's running this board?' (I knew I wasn't). Go back and sit down." Perhaps some of this atmosphere was the aftermath of when the young boys were handling subscribers telephone calls. What a jolly time they had—at the expense of the subscribers.

Because the young boys played such a colorful role in the beginning of telephony, I would like to recall some of their antics which led to the employment of young women as switchboard operators. The boy's reign was brief, except for night work which was handled by the boys for some time as parents would not permit their daughters to work at night.

To the best of the writer's knowledge, the first boy operator was George W. Coy of New Haven, Conn. He was employed in 1876, the year the telephone was invented.

The first boy operators, like the iron wire lines and the earliest switchboards, were a carry-over from the telegraph. Some of the boys were not more than 13 years old. While many no doubt took their duties seriously, not a few of them, it seems, had the job thrust upon them by distraught mothers who hoped that it might keep them out of mischief. From some reminiscent accounts, however, it would appear that the telephone office only afforded greater facilities for causing annoyance.

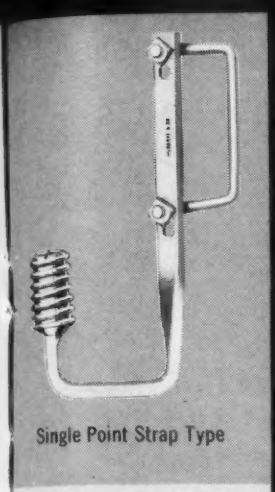
Several of the boy operators who grew up with the telephone business, recall how they yelled to each other, whittled on the boards, leaped pell-mell between switches—not, of course, with the idea of expediting service, but for the sheer fun of it, and if they could knock over a couple of fellow operators in the process, so much the funnier. When some other diversion held their attention, they would leave a call unanswered for any length of time, and then return the impatient subscriber's profanity with a few original oaths.

Though it is not likely that such goings-on were tolerated continually, the first operators were not old enough to be talked to like men, and not young enough to be spanked like children and, until better methods were devised for the operation of telephone exchanges, they were kept on and performed a variety of functions.

Often, in addition to finding which one of the many close-set like-sounding bells was ringing, and to making the desired connections, the job consisted of sweeping the office, keeping coal on the fire and carrying out the ashes, running errands, collecting bills, throwing wagon spokes at line wires when they became crossed by the wind, and shouting through the window to the hackman on the street that Mr. So-and-So had called for him to meet the 11:30 train—all for $5.00 a week.

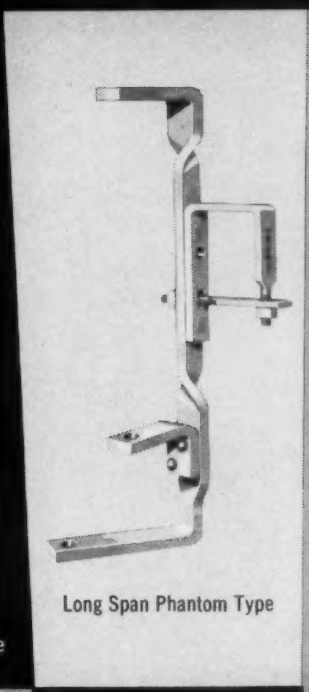
Young ladies took over the operation of the switchboard in 1878, and it is generally conceded that Miss Emma Nutt, Boston, Mass., was the first female telephone operator. In the late seventies, many people thought that it was not quite decent for young girls to go outside of their homes for employment; it jeopardized their chances of marriage. How times have changed!

Today, young girls believe it enhances their opportunity for marriage, and rightfully so, to be engaged in the business world. Some parents thought it was best to have their daughters

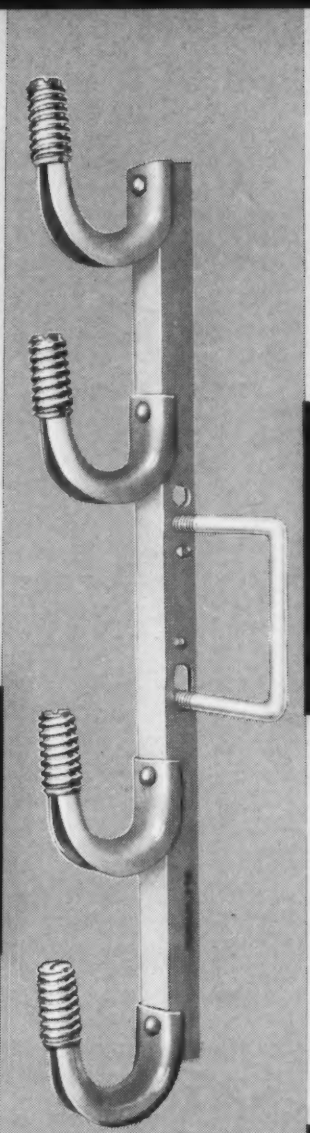


Single Point Strap Type

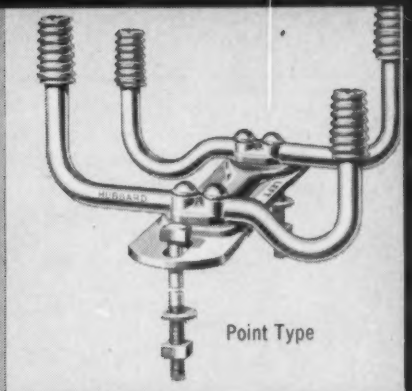
One Piece Phantom Type



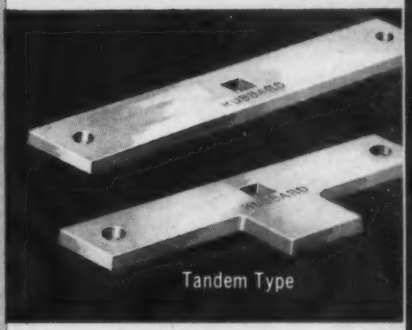
Long Span Phantom Type



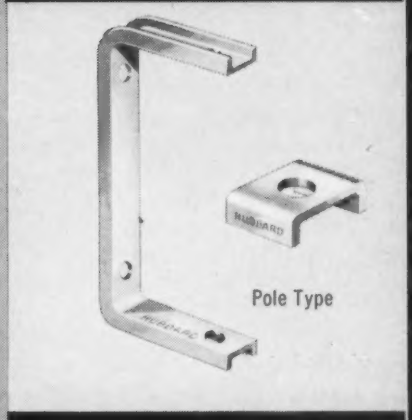
Multipoint Type



Point Type



Tandem Type



Pole Type

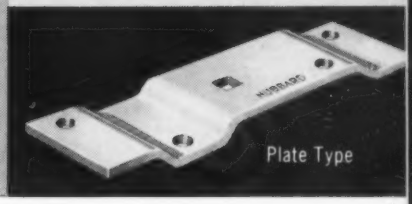
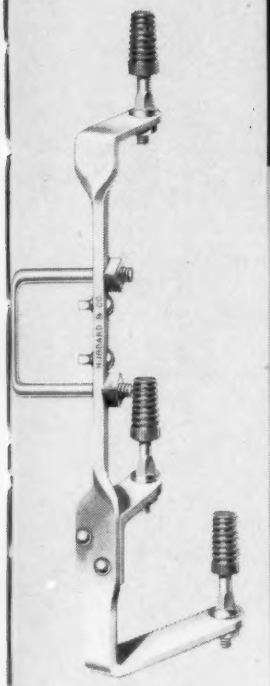
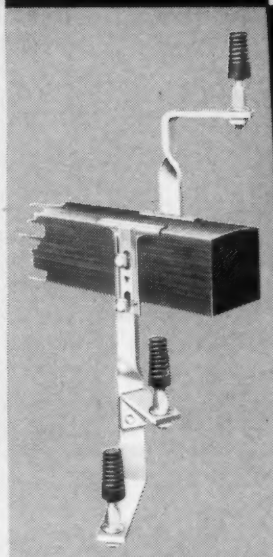


Plate Type

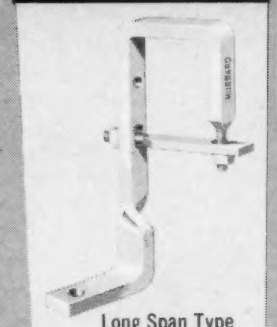


Phantom Pin Type



Two Piece Phantom Type

Standard Telephone Type



Long Span Type

TRANSPOSITIONS? Hubbard has them!

No matter what your transposition problem, there is a Hubbard Bracket specifically designed to fit the job. From the standard under arm single circuit style to the newest precisely balanced point types, Hubbard transposition brackets are easy to install, and give low cost, trouble-free service under the most adverse operating conditions.

Hubbard's complete line of Hardware for the Telephone Industry is carried in stock nationally by more than 200 distributors, men whose business it is to know and service local needs. You are sure of an ample stock of the right sizes and combinations. Call your Hubbard distributor for his help and assistance on your line construction and maintenance problems.

HUBBARD AND COMPANY

Pittsburgh 1, Pa.
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Oakland 8, Calif.
Plano, Texas

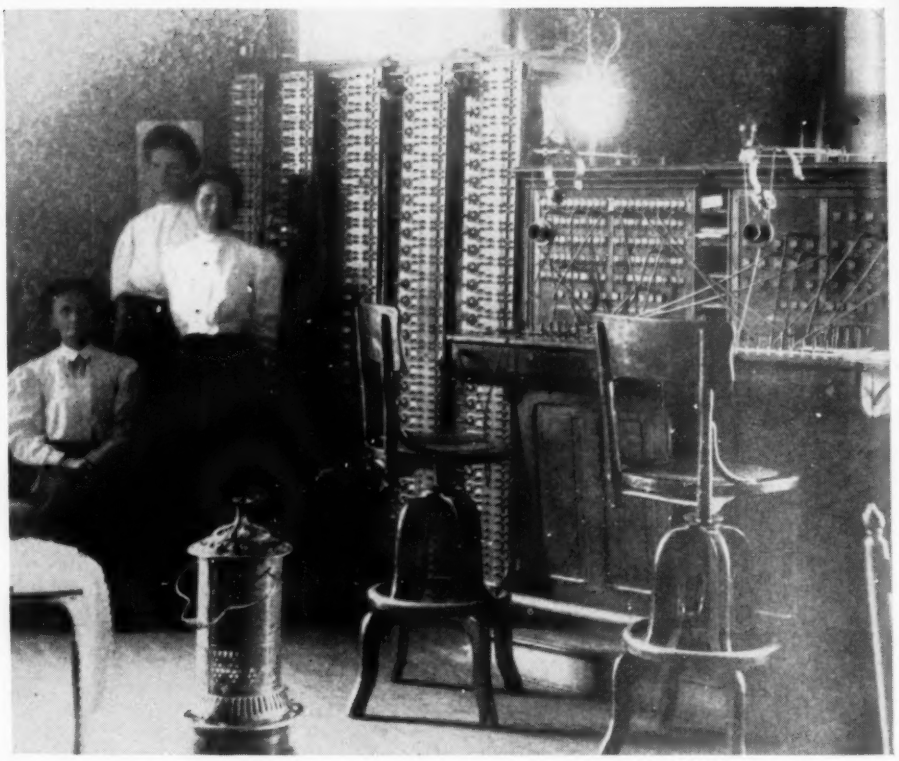
XUM

serve as clerks in shops or drygoods stores—there were no department stores in those days—but this, on the other hand, thrust a girl into contact with people of all sorts, and one could make no secret of the fact that she was working.

The desire to earn some money which she could call her own and spend as she pleased—a desire that is still prevalent today—lured many a girl to seek remunerative employment, and there were those who found it necessary to earn their own living or to help with their family's finances. For these, telephone operating was an interesting alternative to clerking, factory work, dressmaking, millinery or nursing, a profession which had become dignified and popular.

Among the early telephone operators were girls who also had experience as cashiers, copyists, bookkeepers and clerical workers. Little thought was given to educational qualifications.

It was difficult at first to get girls to work as telephone operators. Office managers occasionally went into the home of a "soft-voiced" girl (It seems a pleasing soft-toned voice was essential from the beginning) and pleaded with the parents to let their daughter take the job at the switchboard. Then, as now, friends quickly recommended friends, since the work in the telephone office was steady, and under more pleasant conditions and for shorter hours than the factory, less fatiguing than the store, and fascinating because of its novelty and possible future. Telephone companies soon found themselves with long waiting lists of girl applicants. On such a list, one might remain for one or two years.



This "viaduct" switchboard was installed by the Highland Telephone Co. of Delta, Pa., about 50 years ago. Note lamp on right, used to indicate to the operator when ringing into trouble on a line. Also note main frame which has a switch in addition to the lightning protector on each line.

Before becoming engaged in the telephone industry in 1907, the writer tried several other jobs during the year 1906. Clerking in a general store, wrapping bundles in a drygoods store, clerking in a confectionery, where she was privileged to eat all the ice cream and candy she could hold, with the result she quit when her appetite had been appeased, and went to work as desk clerk for the Postal Telegraph Co.

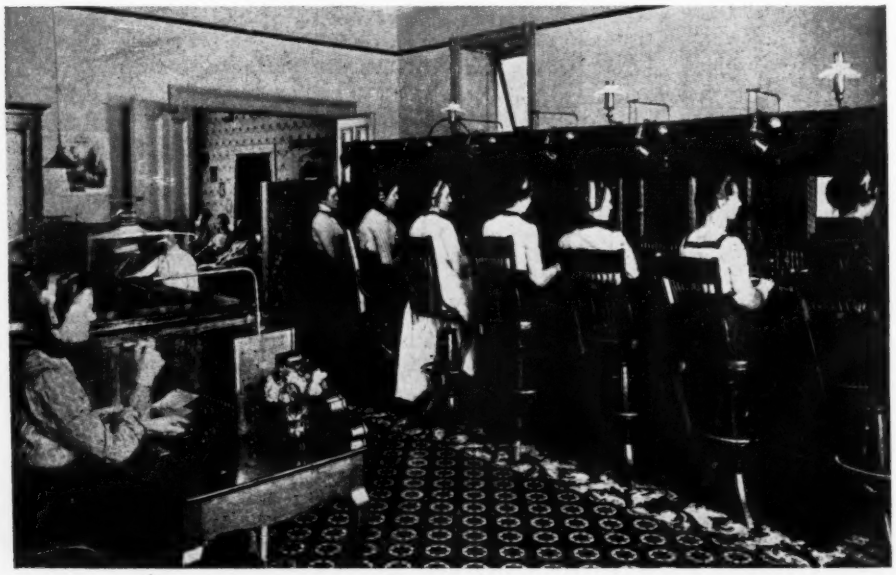
Here she experienced what it meant to work with 13-year-old boys who would argue about whose turn it was to deliver a telegram, with the result that the argument was frequently taken to the alley in back of the office. This, plus having a manager who was a "wolf," induced her to apply for a job as switchboard operator.

I shall never forget the day I climbed two flights of stairs to where the Springfield switchboard was located and where the chief operator, Miss Barnes, interviewed the applicants—I was a tall, brown-eyed shy girl of 15. Years later Miss Barnes told me she was not in need of an operator when I applied for the job, but I looked at her "so pleadingly with my big brown eyes," she could not resist hiring me.

How happy I am that she did! I would go to the office at night and listen in with an experienced operator. At that time there was a common battery switchboard in use. I drew a picture of a bank of jacks and every minute of time I could spare, I would practice finding the numbers.

As you know, when you have mastered one bank of jacks, you will also be able to locate the numbers in other banks. All you have to do is to first locate your stile strip number. Needless to say, I was not paid while learning.

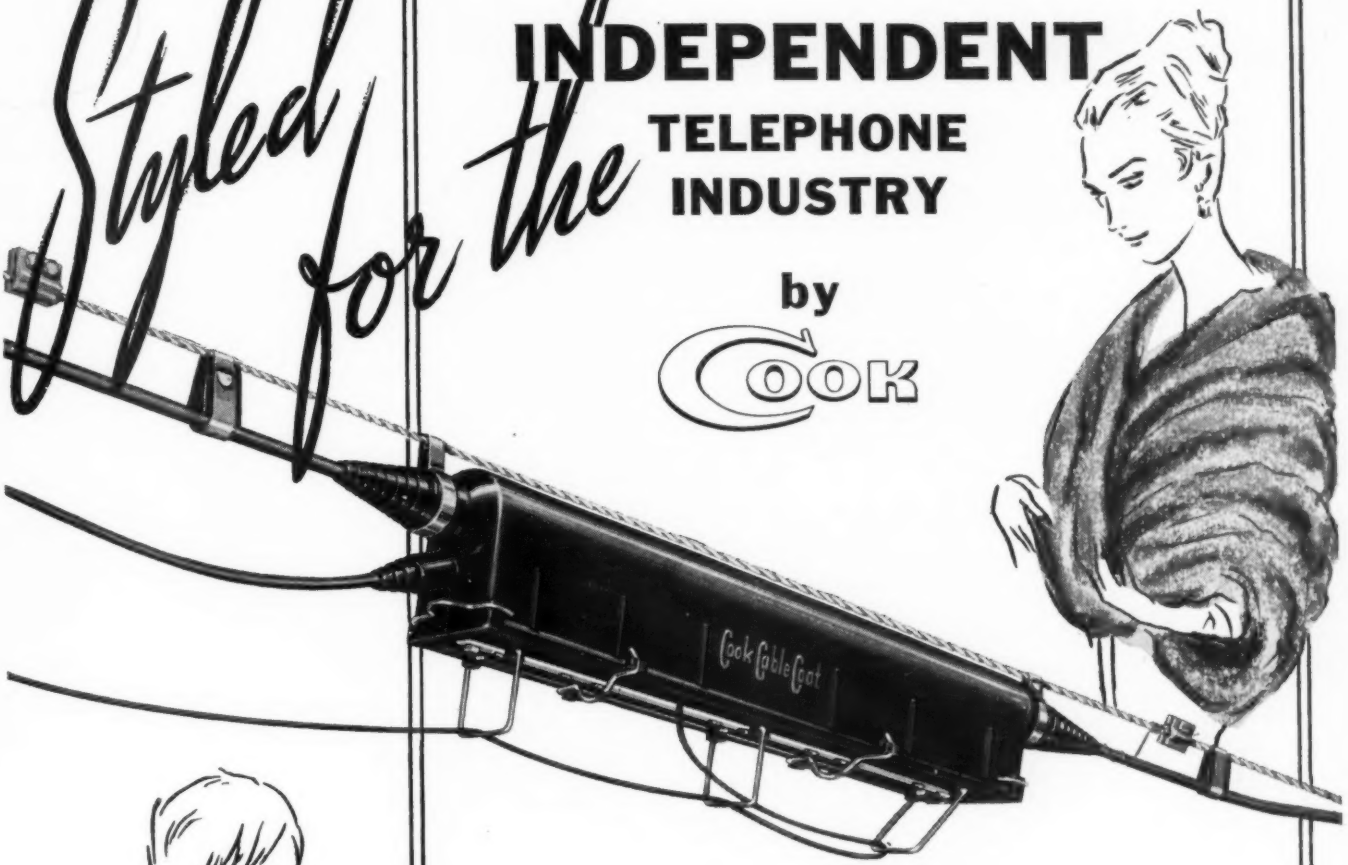
In a small office, the new operator sometimes stopped by on Saturday evening to have a friend show her how to work the board at which she was to



Operating room of the LaCrosse (Wis.) Telephone Co. in the early 1900's. Reproduced from the July, 1901 TELEPHONY.

Styled for the INDEPENDENT TELEPHONE INDUSTRY

by COOK



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Fashioned with exclusive protection, distinctive auxiliary nozzle and cable tap features.

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start on Monday morning. In busy offices, it was the custom to seat the new operators beside more experienced girls and let them learn by watching. What a monotonous ordeal that was! The girl would watch awhile, and perhaps doze awhile, and long for the time when she could get away.

After a day or two of looking on, supplemented by such verbal instructions as the older operators could give them, the new operators were allowed to handle calls themselves during slack periods, until they became proficient enough for a full-time operating job. With such hit or miss preparation, girls often misconceived what they heard. Not infrequently they referred to a "line test" as a "tongue test" a "trunk" as a "trump" or to a "circuit key" as a "circus key."

Called by Name

Calling by name was the custom until an office had about a thousand subscribers. Then numbers were introduced. This usually met with violent protest on the part of subscribers who disliked bothering to look for numbers. As one operator put it: "It seemed as if the subscribers went suddenly blind."

For this reason, many conscientious and obliging operators spent their spare time studying the new directories and memorizing numbers, not realizing they were making a hardship on other girls who would come to the office for training.

In an office where the writer was doing some supervisory work, subscribers were in the habit of calling by name. It was suggested that operators use the phrase, "Do you know the number?" when a subscriber would call by name, and if the answer was in the negative to say, "Shall I give you Information?"

The following day, while having lunch in the restaurant, a man came in, picked up the receiver and quickly hung it up again, remarking to the waitress, "I'd better look up the number or they will sic that Information operator on me." It took a lot of time and patience to educate the subscribers to call by number, but the mission was finally accomplished.

There were no standard operating phrases until the early nineties. An operator might answer a subscriber's signal with "Hello, number?" "What is it please?" "What number do you want?" or even "What?" depending upon her mood. Sometimes she would say "Thank you" or repeat the number, sometimes she made the desired connection without saying anything.

An operator's early training consisted of something like this: She was told: "This is the switchboard; this is a plug; this is a jack. When a drop falls, you will plug into the jack directly under the drop and speak into this transmitter, which hung suspended from the board (if you turned your head to the right or left, the subscriber had difficulty in hearing you). You will put this part to your ear; it is called the receiver. You will give your number and the subscriber will give you either the name or number of the party he wants. If he gives you the name, look the number up in the directory, write both numbers on one of these tickets, and pass the ticket to the operator directly behind you, who will complete the connection."

The tone of voice to use was not mentioned, and no doubt there was a startled subscriber when the operator yelled the number loudly. In one instance, the manager advised the operator to hang her head out the window, stating, "the subscriber will hear you better, and it will be more quiet in the office"—shame on him!

Operators Had Numbers

Have you any idea why the routine of operators answering by giving their operating number was introduced? It was for the purpose of discouraging "date makers." The writer can remember telling subscribers, "I cannot give you my name, but my number is 88," especially during the period preceding the holidays when operators were rewarded for the good services they had rendered during the year by their subscribers who sent in boxes of candy and other gifts.

One Christmas the writer received so many boxes of candy, the chief operator gave a goodly number of them to other operators less fortunate. I didn't mind sharing my candy with other operators, but I did resent the chief operator taking this action without consulting me, and I told her so in no uncertain terms. She told *me* off, too, and I almost quit my job, or got fired—I don't remember which.

A good manner and a soothing voice were the operator's only protection against irate and profane subscribers who had become accustomed to swearing both at and with the boy operators. When a doctor subscriber dropped into a telephone exchange and explained to the operator that he was apt to swear occasionally, but that he would not mean it, she promptly replied that she would stand nothing stronger than "damn." Profanity on the part of subscribers was frowned upon by telephone companies, but this condition existed for a long time before action was taken to correct it.

The writer recalls a subscriber who was accustomed to being abusive and, one hot summer day when perspiration was rolling down her back, there were no electric fans or air cooling systems during that era, she answered the grumpy subscriber and he immediately started to abuse her and wound up by telling her to go to h_ll, to which I replied, "Oh, now, mister, you wouldn't want me to go there on a hot day like this, would you?"

Much to my amazement, he asked for my number and said he wanted me to handle his calls from now on. My remark was "fresh" but it made a "believer" out of that subscriber. Many years later, I met this irate subscriber and we often laughed at the experience we had when I was a switchboard operator and he was a room clerk in a hotel.

Many of the pioneer operators were girls in their teens, and most of them had never seen nor used a telephone before, but it was soon generally conceded that their service was superior to that of the boys. While they were often fond of airing their voices and wasted time talking to subscribers, on an average they handled their calls more promptly and pleasantly than the boys. They were steadier, did not drink beer and were always on hand.

Sunday Work a Problem

The transition from boy to girl operators took place slowly. Since most girls were allowed by their parents to work only during the daytime, boys were kept on the night shift, generally, in the United States, until after 1900.

For several years after girls were introduced as operators to preside over the boards where calling subscriber's signals dropped, boys continued to be employed to connect the calling lines with the trunk line to the office called. These switch-boys usually gave the most attention to the girls whom they liked, or the ones who yelled the loudest.

Sunday work was another problem. About 60 years ago, an operator at Columbia, S. C., had always been a good church member and regular attendant at church services, until her job demanded that she work on the Sabbath. Fellow members of the congregation with whom the girl had worshipped were thoroughly incensed by her unorthodox conduct and carried the case to a general assembly of the denomination.

After long and serious debate by the brethren, and a vote of 48 to 15, the operator was finally vindicated, on the

(Please turn to page 113)

Your Invitation . . .

This is your invitation to visit the USI EXHIBIT, Room 619A, Hotel Conrad Hilton, where you will see our new step-by-step central office system featuring a HIGH SPEED MOTORSWITCH. See how this USI Motorswitch equipment searches over a group of 100 lines, trunks or connector terminals in less than six-tenths of a second.

On the 60th Anniversary of Independent Telephony, this new USI development is especially significant of the giant strides our industry has made in research and engineering. Be sure to see this new USI system. Remember the suite—619A and 620A.

DOOR PRIZES . . . *unique telephones of interest to collectors*

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Post Office Box 470, Charlottesville, Virginia

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SAVE for YEARS

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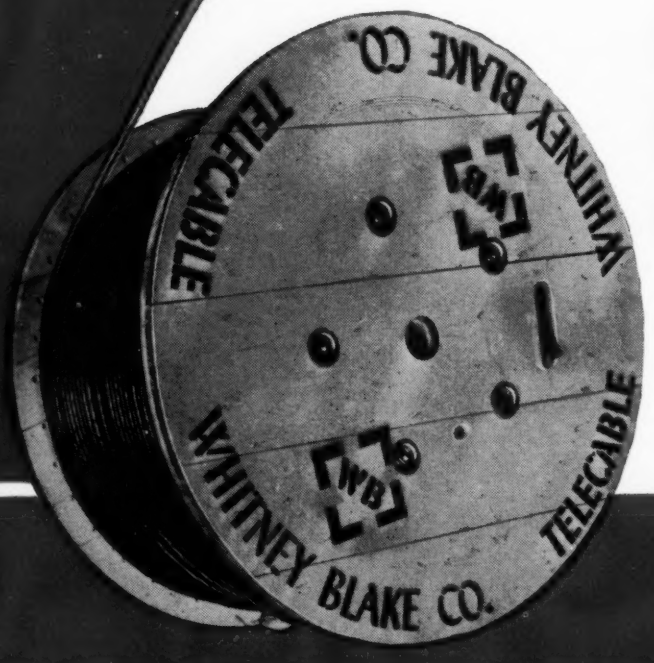
THE STANDARD FOR QUALITY AND SERVICE



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WB has that which others have yet to gain . . . EXPERIENCE

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- LONG SERVICE LIFE . . . LOWER MAINTENANCE COSTS . . . All WB wire products are made to those high standards of quality that provide savings for years to come.

INDEPENDENT

Well Built Wires Since 1899

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WHITNEY BLAKE COMPANY

NEW HAVEN 14, CONNECTICUT

The Commercial Story

From Order-Taking to Selling!

By K. L. LAWSON*

"HOW SOON can you get a telephone put in? Well, I don't know. Probably in a week or so. What kind of a telephone do you want? The plain wall set with a party line is the cheapest."

This sort of customer approach sends chills up and down the spine of the modern-day, merchandising minded telephone man and woman. But the day is not long past when this sort of thing was common in our business.

In former times, in order to get to the telephone company in the first place, the long suffering prospective customer quite often would have to wheeze up a flight of creeking stairs and feel his way through a dimly lit corridor into a somewhat grim and shopworn central office. Here the manager or operator would begrudgingly take enough time to find out what he wanted. Little or no effort was made to sell any of the many "extras" of modern service. In fact, no one had even thought of most of them. The attitude then was, "We're the only telephone company in town. If somebody wants service, let them come to us and ask for it. And if they don't like what we have to offer, they'll just have to put up with it or do without."

Henry Ford used to say he didn't care what color they painted his Model T's as long as it was black. The same line of thought prevailed with telephones, too. And we charged 25 cents extra for a desk set—black, of course.

After the customer had his service we tacked on a two-bit penalty charge if he didn't pay by the 10th of the month. And if the bill went to the 25th unpaid—Whammy!—we disconnected him, but fast.

Today, customers of progressive companies walk into the inviting atmosphere of a modern business office. Their eyes fall on an attractive display of color telephones or uses of additional home telephones. Posters or counter cards add their bit to the story. In many offices the customer is comfortably seated at a "sit down" counter or desk and the smiling service representative then begins the conversation.

Harsh collection procedures generally are a thing of the past, too. They are the best way we know of to make friendly customers unfriendly. Naturally, we can't let accounts go unpaid. But customers should be separated according to their credit standing and paying habits. This is done by some companies by individual collection cards on which the subscriber's monthly paying record is entered. Accounts may then be separated and rated for appropriate treatment.

In larger exchanges it is often helpful to assign groups of accounts to certain service representatives. The representative can thus become familiar with the habits and needs of his

*Mr. Lawson is general commercial manager of Lincoln (Neb.) Telephone & Telegraph Co.

Campaigns to merchandise and sell color telephones form one medium that telephone companies are using to increase revenues. In the left photo are G. Howard Briggs (left) and B. C. Ames of the General Telephone System, discussing that system's plans for "pushing" these popular instruments. At the right, a telephone subscriber pays her bill at a drive-in cashier's window, which is proving to be popular with the public.

THE WORLD DEPENDS ON

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FOR

DURABLE COMMUNICATION CABLES

CITY CABLES
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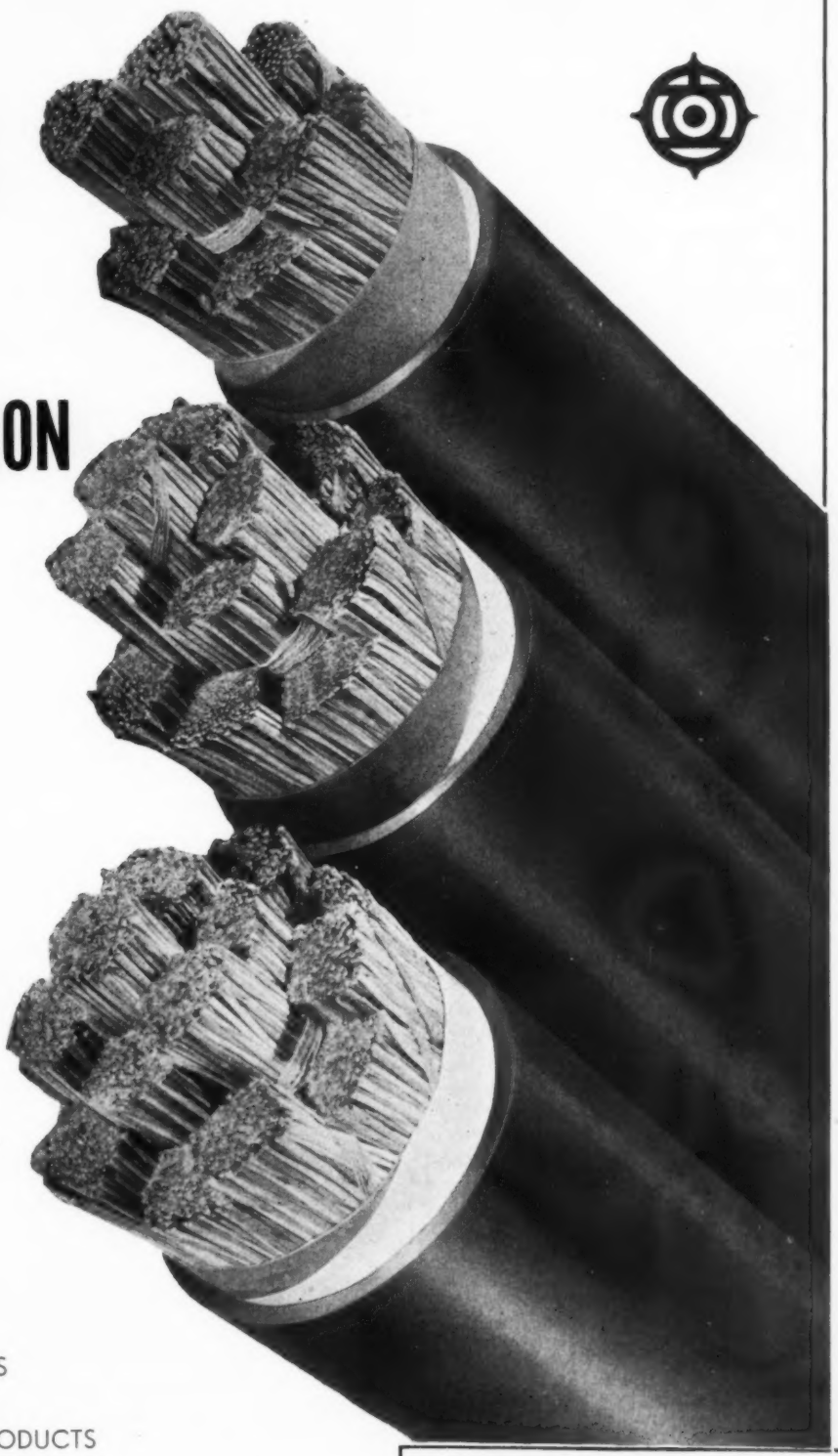
OTHER SPECIAL CABLES



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Besides the above HITACHI also manufactures the following similarly dependable products:

POWER CABLES
INSULATED WIRES
MAGNET WIRES
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ALUMINUM WIRES
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For details on the above HITACHI products, please contact:

Hitachi, Ltd.
Tokyo Japan

CABLES: "HITACHY" TOKYO

customers and can do a better job of serving them.

The climate of a modern office is conducive to sales and the service representative trained in this field takes full advantage of the situation. The customer has come to us asking for service and wants to know what we have to offer.

So-called "package" plans are useful in pointing up the modern trend of a well-telephoned home. Such plans offer several telephones or other services as a unit. They usually waive service charges for all extensions installed with the main telephone, except the first one. Such waiving of installation charges is desirable from a sales standpoint whether the package plan is used or not. Some companies do it in any case where the installer is on the premises to complete a job which involves a service connection charge.

An excellent sales aid used to advantage by service representatives of some companies is a set of miniature color telephones. This is also useful in demonstrating color in the home or office.

In all contacts an earnest effort should be made to make the customer see the convenience and relative low cost of complete telephone service. Most people are used to "having the book tossed at them" saleswise. Why shouldn't we do it, too?

If you have dropped in at your car dealers lately, you will know what we mean. The basic cost is only the beginning. The smooth talking salesman soon has you convinced that you can't get the car out the door without power this, power that, deluxe appointments, safety devices and other comforts and luxuries, including air-conditioning. What's more, you don't *want* to drive the car out the door without them either.

Our point is that people today want to live well. They want the best, or at least the best they can afford (or can handle on installments), and they are willing to pay the price.

It's up to us in the business to take full advantage of this fact. A positive and aggressive attitude in our thinking about customer needs is the first essential of a successful sales program. And this applies to people in all departments, not just those whose job it is to sell.

Two years ago one company we know of instituted an employes' sales participation program that has proven to be highly worthwhile. Sales meetings were held in all departments and areas. Employes were shown a motion picture on telephone sales and then engaged in a discussion of the subject. Each employe was given a plastic folder containing simple order forms and a folder of rates and charges.

An early typical general office scene pictured in September, 1901 TELEPHONY.

Through this plan, installers are making valuable contracts for extensions, color telephones and other equipment. Traffic people turn in valuable prospects for additional directory listings in addition to tips on extensions and other services. People in all departments are taught to be alert to sales opportunities in their daily contacts.

While employe sales participation programs are valuable, the principal responsibility for sales contacts should rest with commercial people. As we have pointed out, many contacts can be made in the business office. In addition, larger companies find that a force of salesmen trained not only in selling but in the mechanics of telephone systems is most important.

Such people are sometimes called "service engineers." Their job is to keep in close contact with business customers, particularly those who need multi-trunk service. They should have training in the plant department working with PBX's and dial equipment and have a thorough knowledge of all types of service that we can offer our customers. Such a background of experience is essentially helpful.

Much as long distance business has increased over the country in recent years, there is still a rich opportunity for further development in this field. The recent effort to encourage florists to use long distance in their "flowers by wire" business is a case in point. Many companies are going "all out" in their use of long distance credit cards, a good business stimulant. The disadvantage here, of course, is that it discourages the use of direct distance dialing which will become an increasingly important factor in the next few years.

Outdoor telephones placed at favorable locations are good revenue producers and encourage long distance usage. They also are a distinct service to the public. Most modern motels have, or should have, an efficient private branch exchange to provide their traveling guests with convenient telephone service. Most of this business, of course, is long distance.

Special services of many kinds offer an opportunity for the sale of long distance facilities. Pipe line companies, brokers, airlines, trucking companies, military installations are some cases in point.

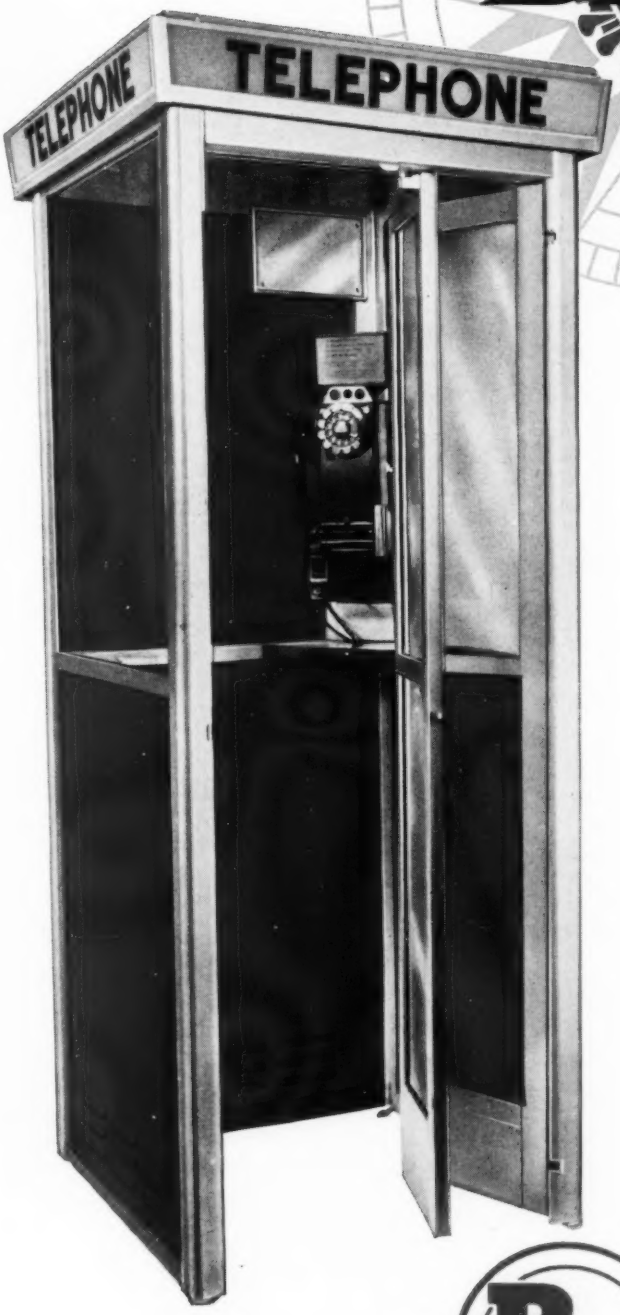
Surveys have brought home the somewhat jolting fact that many residential users still think of long distance as a means of emergency communication—death messages, accidents, etc. There is much to be done to encourage casual and regular use of this service.

Advertising is an important part of the over-all merchandising effort and is an essential aid in telling the public what we have and building up a desire for our services. Most companies today devote the major part of advertising to sales promotion. Ads talk about extensions, color telephones, long distance, yellow pages and extra services. They encourage people to call by number, too, and perform other essentials such as suggesting cooperation on party lines and doing a job of education when a new service is instituted, such as direct distance dialing. Institutional copy is important, of course.

The advertising budget should be

(Please turn to page 119)

BEST everywhere



Indoors or outdoors, in any location — service stations, parking lots, stores, airports, motels, bus and train stations, public buildings and innumerable other spots —

the B-N booth is best on all these counts

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★ EASE OF ASSEMBLY
★ EASE OF MAINTENANCE
★ RESISTANCE TO RUST, STAIN, ODOR
★ LIGHTNESS OF WEIGHT
★ PROVEN DURABILITY
★ VERSATILE PANEL ARRANGEMENT
★ PUBLIC ACCEPTANCE
★ INDUSTRY ACCEPTANCE

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Modern billing machines and trays for holding accounts, such as pictured here, simplify and facilitate billing procedures—even for small and medium-sized telephone companies.

Telephone Accounting

Transitions and Changes Through the Years

Controller's Department, General Telephone System

THE TELEPHONE industry, both the Independent and the Bell segments, has played a unique role through the years in an economic system organized around and actuated by the profit motive. Under such a system, operations are conducted for the purpose of producing net income by furnishing customers or clients with goods or services at prices in excess of the related costs. It is one of the functions of accounting to maintain records of operations, showing revenues, income, costs, and expenses, so that the net income or loss can be periodically measured.

Historically, the chief purpose of public utility regulation has been to prevent the charging of monopoly prices. The purpose was to secure for the public the advantages of legal monopoly within a given area without the disadvantage of unregulated monopoly prices for the service. In order to carry out such a public policy, special administrative agencies become necessary. The result was the creation by the state and federal governments of a form of administrative tribunal known as the commission. The influence of regulation on the accounting activities of telephone companies, as well as on all other public utilities, is most important and extends to almost every phase of public utility accounting.

Uniform System of Accounts

Political recognition of legalized utility monopoly came about in the early years of the century when Congress passed the Act to Regulate Commerce. The Interstate Commerce Commission (ICC) was given authority by this act to prescribe a Uniform System of Accounts for telephone companies. The system of accounts was developed by the staff of the ICC in collaboration with representatives of the American Telephone & Telegraph Co. and the Independent industry, and was based largely on the accounting system in effect at that time. It was made effective Jan. 1, 1913. A further requirement was the filing of monthly and annual reports.

In the early years of the industry, systematic depreciation accounting was not yet a generally accepted practice. During the early developmental period, utilities considered it essential that rates be kept as low as possible in order to encourage the growth of demand for service and to induce investment of capital in pioneering enterprises. There were no clear-cut distinctions among such present-day terms as maintenance, original cost, replacement costs, etc. As early as the 1890's, however, some of the Bell companies began to make occasional appropriations which were set up in liability accounts to meet future costs of a kind which, at that time, were usually considered to be maintenance, but which today are treated at least in part as retirement losses and charged to the depreciation reserve.

By 1910, depreciation accounting began to take its present form. During the previous year the Corporation Excise Tax Law was enacted placing a tax on net income, the amount resulting after deducting ordinary and neces-

The dial system Sam bought was a bit complicated

So his troubles were big ones, and never abated.

The circuits were intricate—the parts became worn

And now Sam wishes he'd never been born!

As you see for yourself, poor Sam's in a mess

And it's costing him dear—though he bought it for less.

MORAL: BUY STROWGER AUTOMATIC

enjoy low-cost maintenance...and less of it

You'll never find yourself snarled up like Sam if you buy Strowger Automatic. Its circuits are *simple*, its construction is *strong*. Experience proves that maintenance is easy—and there's very little of it! Call your friendly Automatic representative today. He'll be happy to help in any way he can. Address: *Automatic Electric Sales Corporation, Northlake, Ill. Or call FIllmore 5-7111.*

AUTOMATIC ELECTRIC

A member of the General Telephone System—
One of America's great communications systems

GENERAL TELEPHONE SYSTEM

XUM

sary expenses and all losses, including an allowance for depreciation. The effect of this act and the subsequent federal income tax statutes on the growth of the use of depreciation accounting cannot be overemphasized. It was the first instance in which the charging of depreciation to expense was definitely advantageous. By this time some of the Bell companies actually made use of depreciation rates by plant classes.

The Interstate Commerce Commission System of Accounts for Telephone Companies prescribed essentially the present form of depreciation accounting. As a matter of fact, the initial ICC system of accounts was, in a large measure, a codification of the accounting that was already being followed by the industry. The ICC did not prescribe depreciation rates, but rather suggested methods by which the companies were to determine the rates.

Depreciation Rates

In 1920, Congress passed the Transportation Act granting to the ICC the mandate to prescribe the classes of property for which depreciation charges could properly be included under operating expenses, and the percentages of depreciation that could be charged with respect to each such class of property for those telephone companies under its jurisdiction. The ICC held lengthy hearings during the following decade and explored the subject most thoroughly, and finally issued an order which required all companies to file with them, before Aug. 1, 1934, a schedule of proposed depreciation rates with complete supporting data.

FCC Created in 1934

Early in 1934 Congress passed the Communications Act creating the Federal Communications Commission (FCC)to take over national jurisdiction of the communications industry and transferring the 1920 mandate to prescribe depreciation rates to the new commission. Late in 1934, the FCC, which had taken jurisdiction in July, 1934, held hearings and decided to postpone action on depreciation. After several short-period postponements, the matter was postponed indefinitely.

In 1936, a revision of the Uniform System of Accounts was made to introduce some of the newer concepts arising from the introduction of new facilities in service and more advanced ideas in rate-making. In 1942, after a number of informal conferences, the commission issued a regulation specifying that when telephone companies, subject to the jurisdiction of the commission, found that depreciation rates

Many large companies are installing data processing machines like this one to process detailed volume of data flowing from operating departments to the accounting department.

should be changed, the proposed rates, together with specified supporting data, should be filed with the commission at least 60 days before making changes effective in the accounts.

While, in some cases, additional information was requested in writing by the commission, no other action was taken for a number of years. In 1948, the commission indicated informally that they desired to prescribe depreciation rates for the telephone companies, one company at a time as they could find time to make the necessary studies. The first such order for the Bell System was issued in January, 1949. This procedure is followed today and the commission has under constant review the depreciation rates of all major operating telephone companies.

State Commissions

The local state commissions, which were established by most states under state laws to control *intrastate* charges for telephone services, generally adopted the "Uniform System of Accounts" for large companies operating within their jurisdiction and estab-

(Please turn to page 125)

An early company accounting office, with its high stand-up desks and multitude of ledgers and other accounting records, all kept by hand.

LOOK TO THE LEADER...

for

- RELIABILITY
- SERVICE
- NATIONALLY KNOWN TELEPHONE SUPPLIES

Prompt delivery of your order as specified is assured by Lindsay's fast, efficient, personalized service. Lindsay specializes in telephone supplies *only* . . . warehousing a complete line of the finest nationally known brands . . . your guarantee of the best as you want it . . . when you want it.

LOOK TO LINDSAY

THE LINDSAY TELEPHONE SUPPLY CO., *Est. 1939*

10409 Meech Ave., Cleveland 5, Ohio • Telephone Diamond 1-9212

SEE US AT THE USITA CONVENTION,
OCT. 14-15-16, CONRAD HILTON HOTEL,
EXHIBIT ROOM NO. 617-A,
HOSPITALITY ROOM NO. 1000-01.

SAY LINDSAY WHEN YOU ORDER

Asleep for 25 years

by John Voss

Have you ever wondered what it would be like to fall asleep for 25 years or so—and then see what's happened to the world during that time?

Lots of people—scientists, economists, engineers, writers and others—are making predictions all the time. And the majority of them seem to think it will be a pretty wonderful world. My personal feeling is that most of the predictions are on the conservative side. The way this country of ours is going, in 25 years we'll have things around us which nobody's even dreamed of.

But, you know, in a way progress is funny. A new product is put on the market . . . a scientific discovery is made . . . new manufacturing processes are developed—all in different places at different times. And while you're living with this progress, it's hard to see the forest for the trees. You don't get the whole picture until you can look back over a period of time—and then the *total amount* of change is just overwhelming.

But even though you can't see the *whole* picture of progress while it's happening, you owe it to yourself to keep your eyes and ears open all the time for *specific* developments that will help your business.

Suppose that 25 years ago you decided to standardize on a certain type of equipment. You found it was doing an adequate job—and still is—so you've been sticking with it.

Suddenly you realize, one day, that lots of wonderful things have simply passed you by—almost as if you'd been asleep for 25 years!

Now I'm not saying that standardization is necessarily wrong. It's wrong only when you let it stand in the way of keeping up with best developments in Telecommunications.

For example, there's a great deal going on here at Stromberg-Carlson—especially since we opened the new additions to our Telecommunication Plant. Now we have 800,000 square feet of floor space to work with—all devoted to research, design and manufacture of telecommunication equipment. You'll notice I said *research* first. There's a good reason for that.

At Stromberg-Carlson we're constantly looking for new and better ideas, products, ways of doing things. A great deal of time, talent and money are going into this kind of work because we're dedicated to keep and expand our position of leadership in the telephone industry.

That adds up to progress—*constant* progress. So when you buy equipment by Stromberg-Carlson, today or tomorrow, you know you're getting the latest and best in the industry. You can entrust *your* tomorrow to today's leader.

How long has it been since you've taken a real good look at the things that have been happening in telephony in the past few years? Perhaps you have questions that we can answer for you. Just drop me a line.

And remember — Stromberg-Carlson isn't going to fall asleep—not even for 25 *seconds!*

John H Voss

Vice President and General Manager
Telecommunication Division
STROMBERG-CARLSON, A Division of General Dynamics Corp., Rochester 3, N. Y.

Advertisement

THE Plant Man's Notebook

BY RAY BLAIN, TECHNICAL EDITORIAL DIRECTOR

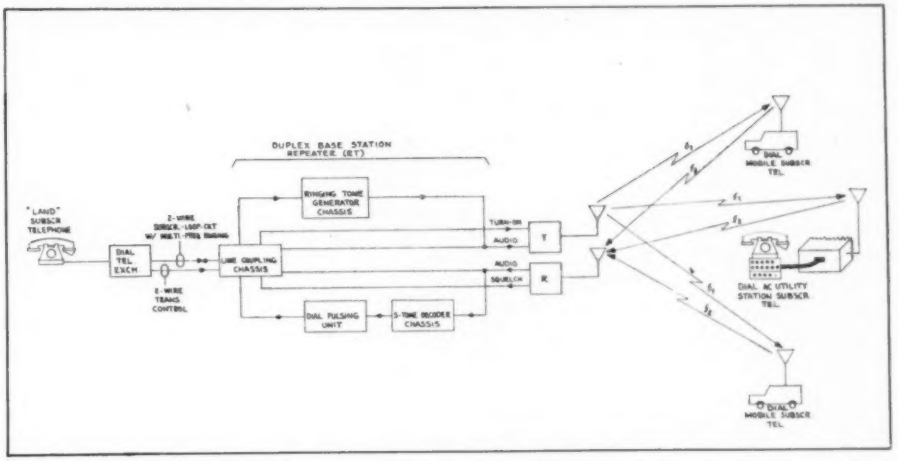
THIS WRITER observed Independent Telephone Week by traveling to Amherst, Va., to witness dialable mobile radio equipment demonstration in the system of the Central Virginia Telephone Corp. This experimental equipment was installed by Motorola Communications & Electronics, Inc., on a contract with the Rural Electrification Administration.

The demonstration was observed by Warner Smith, George Dodrill and Rand Bailey, all of REA; Russ Stewart, L. H. Robinson, Irving Koss, Lee Falwell, Art Reese, and D. R. Szymanski, of Motorola; W. G. Chaney, Art Rose and W. E. Broadwell Jr., of the AT&T.

Also Aldrich Dudley Jr., J. O. Dickinson, and J. B. Spratley, of the Chesapeake & Potomac Telephone Co. of Virginia; Frank Palik of the FCC; Fred Biggerstaff, of the U. S. Forest Service; Fred Hencke, of Telecommunication Reports; Doug Carnes of General Telephone Co. of Pennsylvania, and L. John Denny, president and general manager of the Central Virginia Telephone Corp., and our genial host.

The equipment demonstrated was a push-button dialing, radio-telephone system for automatic exchanges that appears to be ideally suited to the communication needs of mobile radio users and fixed stations in homes located in sparsely settled areas.

This new system has been field-tested for several months by the Central Virginia Telephone Corp. and the results have been excellent. This radio installation provides good coverage of the mountainous terrain of Amherst County, with reliable communication extending 25 to 30 miles from the base station.



Schematic of two-way radio-telephone mobile dialing system connected to telephone subscriber-loop-circuit with multi-frequency ringing.

The system demonstrated consisted of an automatic base station, a fixed station installed in the home of a rural subscriber and mobile units installed in a car and a truck. The 152-174 mc system connects directly into an unattended dial telephone exchange via one of its regular 10-party subscriber line circuits.

The mobile subscribers dial the desired party of the exchange directly from the mobile unit by means of push-buttons on the special control head mounted on the dashboard of the vehicle. The regular subscribers on the exchange likewise can dial directly the desired mobile unit, which is selectively rung at the ringing intervals applied to the 10-party circuit.

A normal conversation takes place between the mobile and the regular subscribers with the mobile party operating a push-to-talk button on his handset. A lock-out circuit is included in the mobiles for locking out all other mobile units than the one called, thus giving privacy to the system.

L. John Denney, president of Central Virginia Telephone Corp., operates the push button mobile radio-telephone in his car.

XUM

The type of tone dialing and signaling employed was selected in order to prevent any mis-dialing or erroneous calling due to radio propagation characteristics, particularly multi-path reflections to or from a moving vehicle which can cause standing wave conditions. The tones are transmitted for an interval of time sufficient to ride over the standing wave gaps.

A "two-out-of-four" tone method is used for dialing from the mobile stations. Each of the 10 push-buttons on the control head produces a certain sequential combination of two out of four tones in the audio band of 1,900 to 2,700 cps. Each tone is timed for a duration of approximately 300 milliseconds. In the base station, these tones are translated into conventional dial pulses.

The 50-watt base station has four special chassis units added for connecting into the telephone exchange. The base station operates on a full duplex basis with simultaneous transmitting and receiving on a pair of frequencies allocated for the particular services in the 152-174 mc band.

Included in the base station is an automatic station identifier unit to meet the FCC's requirements for identifying the station at the completion of a call. When the disconnect tone signal has been received from the mobile party upon the restoring of his handset, the identifier unit transmits the call letters of the base station. The exchange then receives the disconnect supervision and the transmitter is turned off, placing the line and the system in an idle condition.

The 25-watt mobile set is adapted for mobile dialing by means of a special control head. The transmitter and receiver units are mounted in a 10-inch wide trunk housing. A buzzer or bell is included with the control head for signaling the called mobile station. The 25-watt mobile set is equipped with a vibrator. A 50-watt set equipped with a converter is also available.

The series mobile set is arranged with an ac operated power supply for fixed installations in remote subscriber locations. The operation of a remote fixed station is the same as for mobile sets, and thus provides subscriber service as authorized by the Federal Communications Commission.

With the REA system connected into the exchange by a 10-party subscriber's line circuit, a mobile-to-mobile call is completed in the same manner as a party-to-party call on a regular party line, using the standard revertive call equipment in the exchange. An 11th button, marked "PTY," on the control head is momentarily depressed after "dialing" the revertive call number of the desired mobile station. This gives a "hang-up" signal to the exchange as required for the revertive call equipment. The mobile party then waits for the called party to answer after which the base station is used as a repeater in retransmitting the messages between the two mobile stations.

This 25-watt radio-telephone operating from house current has been under test in a home in Raphine in the Blue Ridge Mountains about 30 miles from the telephone company base station.

During the demonstration, we talked over a fixed station located at Raphine, Va., about 27 miles west of the base station at Amherst. There is a mountain with an elevation of 4,000 feet in the path of transmission.

Despite this, the radio communication is excellent with very good volume, and a minimum of noise. We talked from Raphine to a telephone on the Amherst dial system and also to one of the mobile stations. Transmission was very near perfect to both.

Mr. Denney advises that he has had numerous requests from his customers for this mobile service. These requests are from doctors, independent taxis, pulp wood companies and garages, for use on their trouble cars. Salesmen who visit small stores throughout the area have also indicated an interest in the mobile service.

It appears obvious that once mobile service is established in any Independent exchange, it is certain to grow. There is no doubt that many operating companies will be well advised to seriously consider this new source of revenue.

Long Lines Provides More Ship-to-Shore Service

Ship-to-shore telephone service was opened with the S. S. Orcades, 28,000-ton liner of the Orient Steam Navigation Co., it was announced by the Long Lines Department of American Telephone & Telegraph Co.

Long Lines said three other passenger vessels in the company's fleet are now being equipped and will be provided with high seas telephone service in the near future. They are the S. S. Orion, Oransay, and Orsova. Ports-of-call of all four vessels include San Francisco, Cal., Sydney, Australia and London, England.

With the addition of the Orcades 45 passenger vessels now receive high seas service.

If Co-Workers Receive Shock Remember These Rules

The August issue of *Safety Energizer,* employe publication put out by Employers Mutuals of Wausau, Wis., offers "some electric shock rules worth memorizing," useful if co-workers should come in contact with a live wire. The suggestions, originating with the *Minnesota Highway News,* are:

(1) Free the victim from the wire by shutting off the current as soon as possible. If you cannot shut off the current, send someone to get help.

(2) Meantime, act quickly but cautiously, keeping yourself out of danger (free of all grounds) while making the rescue.

(3) Never touch either the victim or the wire with your bare hands unless you're standing on an insulator such as a dry wood box without metal parts.

(4) Always assume that the wire is live, even though it may be broken.

(5) Use a dry stick, dry board, all-wood tool or similar nonconductor to pull the wire free from the victim. Tested rubber gloves may be used, or a perfectly dry loose part of the victim's clothing—but do not touch any part of his body with your bare hands.

(6) A dry manila or cotton rope may be looped about either the wire or the victim to break contact.

(7) Be alert for the loose end of the wire, which may whip around in your direction.

(8) If the victim is unconscious and not breathing when released, apply artificial respiration.

Matter of Terminology

Chairman Martin, of the Federal Reserve Board, recently testified before a House committee on money problems. In the course of his remarks he said: "The tight-money policy, I insist, is a misnomer. Actually, what we have been faced with in the country is loose money. It has been tight in the sense that demand . . . has been tantamount to a California gold rush."

NEW! EXTRA LONG RECEIVER Koiled Kords*

NOW IN COLOR

Extra long receiver KOILED KORDS in color enable you to offer another service to those subscribers who want to move more than four and a half feet from their instruments.

New, long KOILED KORDS retractile cords in color — and in black — are offered in two standard lengths, 18 inches retracted that extend to approximately 9 feet and 30 inches retracted that extend to 15 feet.

Extra long receiver KOILED KORDS are available in colors to match all telephones. See your telephone supply house for full information.

Koiled Kords
INCORPORATED
BOX K, NEW HAVEN 14, CONNECTICUT

KOILED KORDS, the original retractil cords, are the result of 17 years of re search, development and use.

* KOILED KORDS is a trade mark o KOILED KORDS, INC.

XUM

In union there is strength . . .

UNITED STATES INDEPENDENT TELEPHONE

Congratulations to USITA on its 60th Anniversary!

Time was when the Independent telephone industry was hardly an industry at all. Here and there, little (and we do mean little) telephone companies sprang up to offer much needed communication service in hundreds, then thousands of communities.

Then—60 years ago—the problems of the Independent telephone industry were all put into one big basket—the United States Independent Telephone Association.

Here was born a togetherness, a way to work for the good of all, to promote and aid the industry as a growing, important unit of our economy and culture. The Independent telephone company people themselves gave much time and work—without recompense—to make this association work.

The success and growth of the Independent industry has been great, as we all know. We salute the United States Independent Telephone Association, its officers, directors and members for their help in the development of our industry.

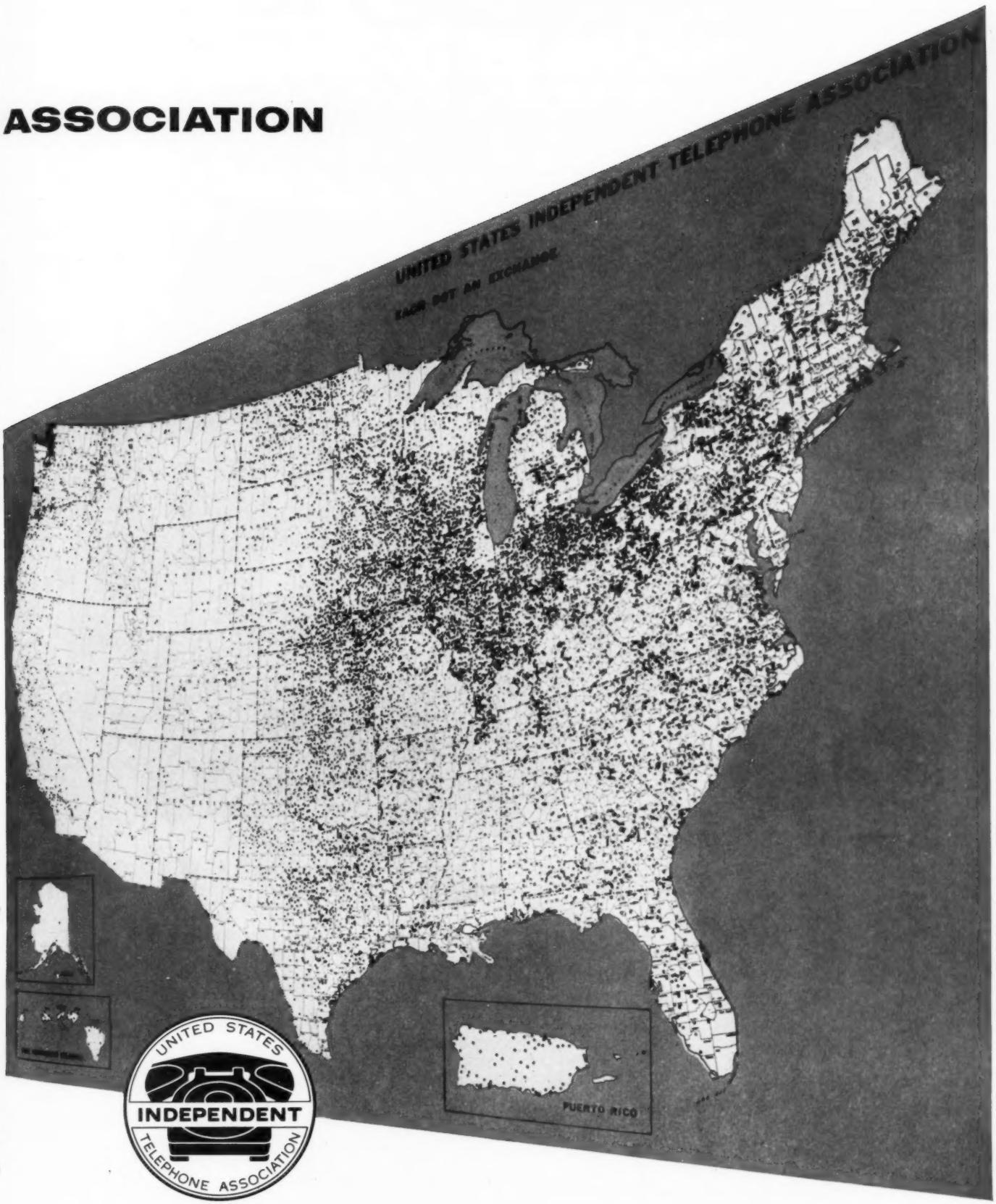
We, at Automatic Electric are proud, indeed, to be an associate member of the United States Independent Telephone Association.

AUTOMATIC ELECTRIC

A member of the General Telephone System—One of America's great communications systems

GENERAL SYSTEM

NE ASSOCIATION



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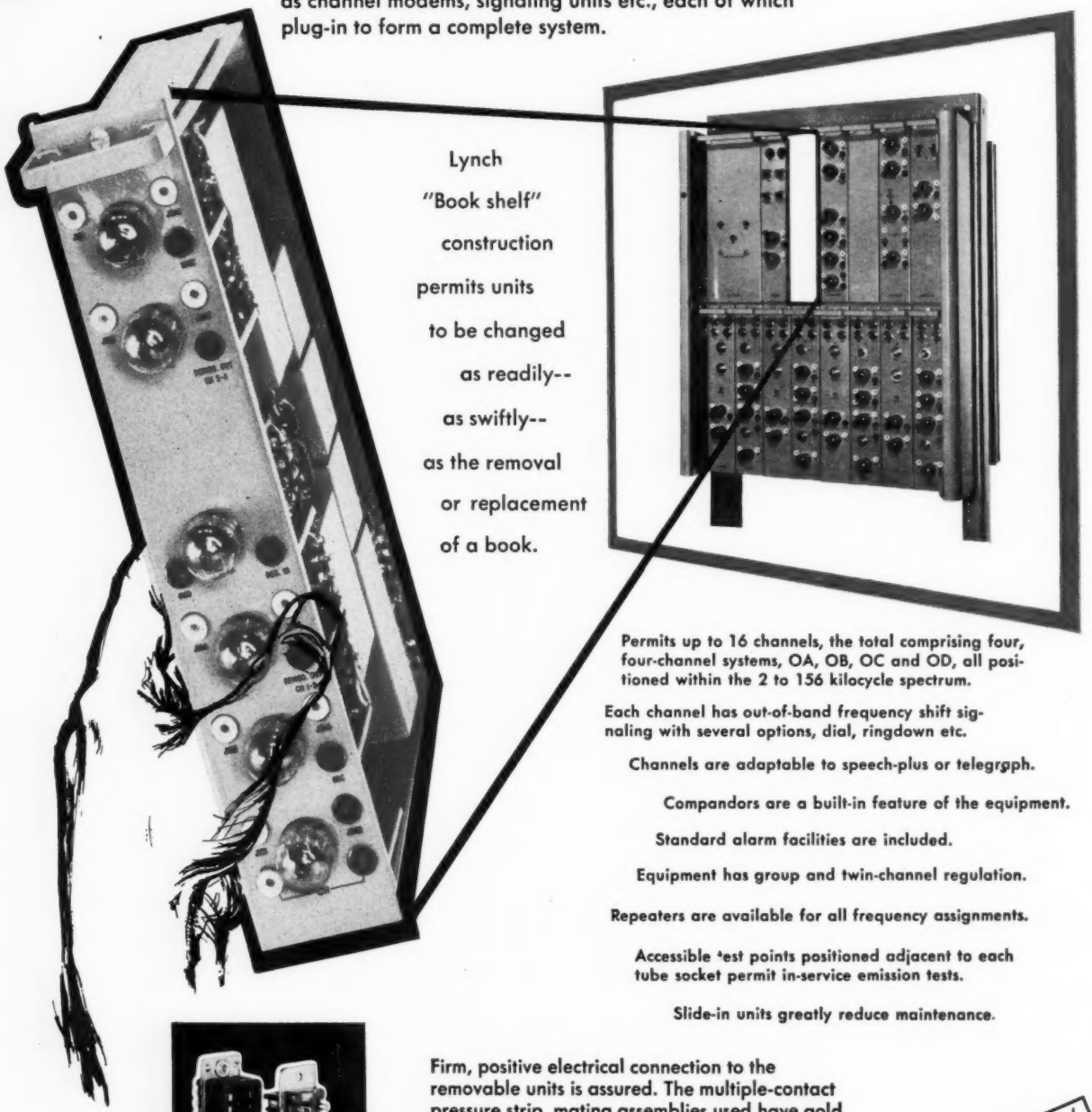
New LYNCH B 500

"O"-type Carrier Telephone System is stackable to 16 channels, offers important, three-fold advantages in installation, operation and maintenance.

The exclusive Lynch B-500 design greatly simplifies installation and reduces rack mounting space requirements. Miniaturized . . . yet without undue component specialization and with every part fully accessible. The terminal is separated into logical operating functions such as channel modems, signaling units etc., each of which plug-in to form a complete system.



Lynch "Book shelf" construction permits units to be changed as readily-- as swiftly-- as the removal or replacement of a book.

Permits up to 16 channels, the total comprising four, four-channel systems, OA, OB, OC and OD, all positioned within the 2 to 156 kilocycle spectrum.

Each channel has out-of-band frequency shift signaling with several options, dial, ringdown etc.

Channels are adaptable to speech-plus or telegraph.

Compandors are a built-in feature of the equipment.

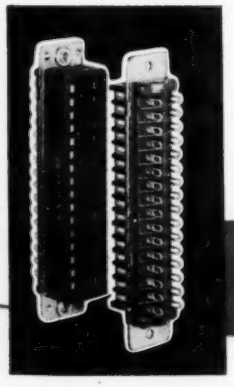
Standard alarm facilities are included.

Equipment has group and twin-channel regulation.

Repeaters are available for all frequency assignments.

Accessible test points positioned adjacent to each tube socket permit in-service emission tests.

Slide-in units greatly reduce maintenance.



Firm, positive electrical connection to the removable units is assured. The multiple-contact pressure strip, mating assemblies used have gold plated beryllium copper contacts, provide sure, noiseless connections. Misalignment is impossible. There can be no bent contact pins since none are used.

Distributed by Graybar Electric Company

Lynch

LYNCH CARRIER SYSTEMS INC.
695 BRYANT STREET, SAN FRANCISCO, CALIFORNIA

CANADIAN DISTRIBUTORS
Northern Electric COMPANY LIMITED

PHILIPS EXPORT COMPANY
Division of North American Philips Company, Inc.

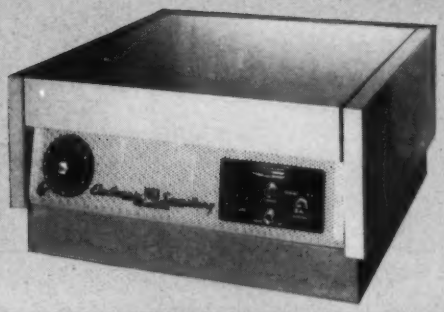
AUTOMATIC

TELEPHONE ANSWERING

AND

RECORDING

EQUIPMENT



Model DCR-1—Answers the telephone and records incoming messages. Outgoing message is professionally recorded on a disc. Incoming messages are recorded on magnetic wire having full hour capacity.

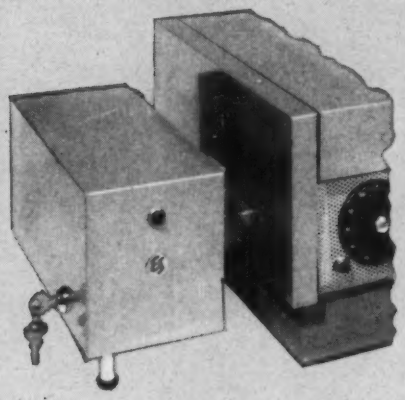
Electronic Secretary

Model T-1—Outgoing message only. Does not have provision for recording incoming messages. Subscriber dictates his own outgoing message on magnetic tape. Messages may be changed at will. Used for weather reports, stock reports, theatres.

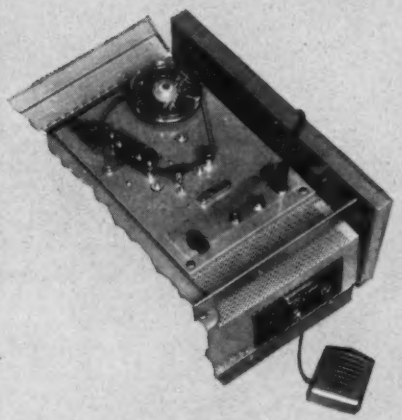
Model TR—Outgoing message only. Uses professionally recorded disc. Does not have provision for recording incoming messages. Used for transfer numbers, vacations, sales promotion.

ADDED REVENUE FOR YOU

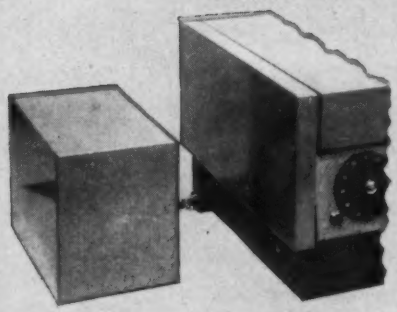
THROUGH MONTHLY RENTAL CHARGE



Model DCR-CB—Same as Model DCR-1 EXCEPT through slight modification subscriber can call his Electronic Secretary from any distant point and have it play back to him all messages recorded by the machine.



Model DCR-1-TA—Same as Model DCR-1 EXCEPT subscriber can dictate his own outgoing message which may be changed as often as desired by means of a tape adapter.



Model DCR-VC-4—Same as Model DCR-1 EXCEPT incoming messages are recorded continuously for one full hour. Used primarily as order taker, but its use is anywhere where long reports or data are given over the telephone.

AUTOMATIC TELEPHONE ANSWERING ASSURES YOUR SUBSCRIBER OF 24-HOUR COVERAGE OF HIS TELEPHONE

ELECTRONIC SECRETARY INDUSTRIES, INC. 1101 So. Prairie Ave. Waukesha, Wis.

A Member of the General Telephone System—
One of America's Great Communications Systems

GENERAL SYSTEM

Distributed by: Leich Sales Corporation
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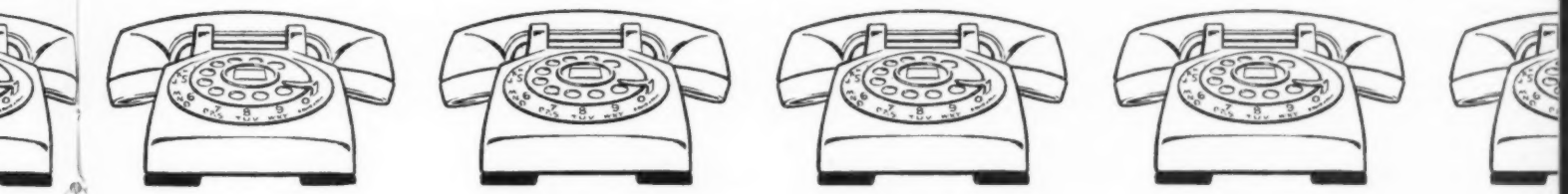
Telephones are part of their family circle



The Dallas P. Raneys of Little Rock, Arkansas, believe in having telephones right where they need them.

"They're part of the way we live," says Mrs. Raney. "That's why we have phones in the kitchen, family room, master bedroom and our daughter's room, and portable phones for little-used rooms and the patio."

Millions of magazine readers this month and next will be able to read what Mrs. Raney has to say about telephone convenience. A full-color advertisement featuring the Raney family is appearing in current issues of these widely read women's magazines:

AMERICAN HOME BETTER HOMES AND GARDENS FAMILY CIRCLE GOOD HOUSEKEEPING HOUSEHOLD LADIES' HOME JOURNAL McCALL'S PARENTS' WOMAN'S DAY

Every home that enjoys complete telephone convenience is a living sales window for the telephone industry . . . whether it is seen in actuality or through the words and pictures of an advertisement.

Working together to bring people together
BELL TELEPHONE SYSTEM

XUM

COURTS AND COMMISSIONS

Continued from page 41

The company's automatic exchange serves 254 local and 304 service stations. Authorized gross rates (25-cent discount allowed for prompt payment) are:

Business:

One-party	$5.50
Two-party	4.00
Rural multi-party	4.50

Residence:

One-party	3.75
Four-party	2.65
Rural multi-party	4.00
Switching service	1.10

The new rate schedule applying to the Foreston company's 75 local and 154 rural stations will boost operating revenues from $7,724 to $9,524, and turn a deficit of $291 into a $1,337 profit, which is a 3.64 per cent return on the $36,722 rate base. Approved rates are:

Business:

One-party	$5.25
Two-party	4.75
Rural multi-party	3.50

Residence:

One-party	3.25
Two-party	2.75
Four-party	2.50
Rural multi-party	3.00
Mileage charge for service beyond the base rate area, each ⅛ mile or fraction thereof:	
One-party	.30
Two-party, each subscriber	.20
Four-party, each subscriber	.15

Kansas Company Sold to Another Independent

The Kansas Corporation Commission has approved the sale of Brookville Telephone Co., it was reported on Sept. 14.

Lloyd Shank, chief engineer of the commission, reported approval of the transfer of the company, serving 138 customers, from Mammie Bradley Smith to Ole and Ruby J. Draves, the new owners taking over on Sept. 1.

REA Makes Five Loans Totaling $2,186,000

Five loans, totaling $2,186,000, to improve and extend telephone service in rural areas of Alabama, Kansas, Kentucky and Missouri were approved the week of Sept. 9 by the Rural Electrification Administration, the U. S. Department of Agriculture has announced. Details follow:

Arab (Ala.) Telephone Co.; $62,000, fourth loan; Sept. 9.

The borrower plans to use the loan funds to furnish telephone service to 289 rural families now without telephones and construct an additional automatic central office at Morgan City. A portion of the loan funds will also finance completion of the system previously authorized.

This and three prior REA loans, totaling $733,000 will provide new and improved service for 1,948 rural subscribers. The Arab exchange, already in operation, serves about 1,450 rural subscribers.

L. M. McDonald is president and manager of the Arab Telephone Co.

•

Foothills Rural Telephone Cooperative Corp., Staffordsville, Ky.; $515,000, third loan; Sept. 10.

This loan will complete the system authorized under previous REA loans. The cooperative will also add 228 miles of pole line and cable, additional toll trunks to handle increased long distance calls, and extra trunks for use in connection with its extended area service.

The present and two prior REA loans to Foothills cooperative totaling $1,707,000 will make possible new and improved telephone service for 2,620 rural subscribers. The system will consist of exchanges at Blaine, Chapman, Fallsburg, Salyersville and Staffordsville, all of which are in operation, serving about 1,050 farm families and other rural subscribers in the area.

J. Milton Kitchen is president of the Foothills cooperative. Duell Williams is manager.

•

Mid-Kansas Telephone, Inc., (formerly the Sterling Telephone Co.), Sterling, Kan.; $702,000, second loan; Sept. 11.

The borrower proposes to expand its service area into Edwards, Harvey and Stafford counties, and fringe areas of Barton, McPherson and Pawnee counties to serve 1,416 rural subscribers, including 246 farm families now without telephones.

Mid-Kansas Telephone, Inc. has acquired the German Valley Telephone Co., Hudson; the Hesston Telephone Co., and exchanges at Belpre and Trusdale of the Belpre Telephone Co.

The borrower proposes to acquire with REA loan funds the Macksville Cooperative Telephone Association, the Macksville & Dillwyn Telephone Co. and the Macksville, Prattsburg & Nora Telephone Co., all at Macksville, and the Valley Center Telephone Co. The borrower also proposes to acquire access rights to the Farmers Mutual Telephone Co., Raymond, and the Howard Telephone Exchange.

The acquired facilities now provide magneto service to 1,170 rural subscribers. Mid-Kansas plans to construct new automatic central offices at Belpre, Hesston, Hudson and Macksville to serve its enlarged area. The present and a prior REA loan totaling $1,167,000 will finance new and improved service for 2,564 farm families and other rural subscribers. The system will be comprised of six exchanges.

Howard K. Culbertson is both president and manager of the Mid-Kansas Telephone, Inc.

•

A & M Telephone Co., Springfield, Mo.; $858,000, first loan; Sept. 13.

The new borrower is now serving 1,824 subscribers from a common battery exchange at Ava, magneto exchanges at Collins, Lowry City, Weaubleau and Humansville, and automatic exchanges at Mansfield and Osceola. (The Humansville exchange is scheduled to be cut over to dial.)

The major portion of this loan will be used in the Ava, Collins, Lowry City and Weaubleau exchanges which provide magneto service to 738 subscribers. The borrower proposes to construct automatic central offices at Ava, Lowry City and Weaubleau. Rehabilitation and new construction scheduled under the loan will enable the borrower to provide improved service for existing subscribers and initial service to 677 rural subscribers now without telephones.

The borrower recently converted its Humansville, Mansfield and Osceola exchanges to automatic operation. A portion of this loan will refinance indebtedness thus incurred.

W. R. Trowbridge is president and manager of the A & M Telephone Co.

•

Stover (Mo.) Telephone Co.; $49,000, second loan; Sept. 13.

The loan will finance dial service for 58 farm families, increase the proportion of private and semi-private lines, and complete the system authorized under the borrower's first REA loan.

Its two REA loans, totaling $244,000, will enable the borrower to serve 534 rural subscribers.

Lyle H. Rath is president and manager of the Stover company.

to the FAR-SIGHTED
INDEPENDENT
TELEPHONE INDUSTRY...

Orchids from COPPERWELD

on your 60th Anniversary

For the Telephone Field:

line wire • insulator ties
drop wire • inside wire
parallel distribution wire
ground rods and clamps
guy strand • messenger strand
lashing wire • cable rings
anchor rods

•

SOLD BY LEADING DISTRIBUTORS

In the years since 1897, the Independent Telephone Industry has built well. Today, it is an integrated part of our daily lives and its foundation stands on solid ground. It is in a position for greater achievement than ever seemed possible 60 short years ago. The future promises a period of expansion and growth that may make the past three score years insignificant by comparison.

For more than 40 years, Copperweld* has worked closely with this industry by producing highest quality products that have gained wide acceptance in the telephone field.

In saluting the Independent Telephone Industry for its many contributions to better living, Copperweld offers its products and services, backed by a continuing program of research and development, to help the next 60 years surpass the highly successful past.

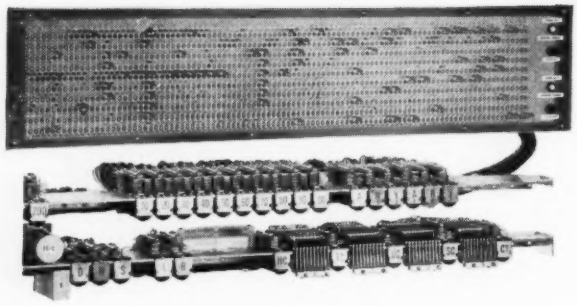
*Trade Mark

COPPERWELD STEEL COMPANY WIRE AND CABLE DIVISION *Glassport, Pa.*

For Export: COPPERWELD STEEL INTERNATIONAL COMPANY, New York

XUM

NOW AVAILABLE *at nominal cost*



Sectional View of Computer Intercept Unit for 100 Line TPL or 1,000 Station TPS Installation.

Advanced technique of printed circuity is used in this equipment. The Magnetic Impulse Counter is the basic unit of the computer register circuits, supported by standard telephone relay apparatus of recognized manufacture.

Congratulations to the U. S. Independent Telephone Association and its thousands of member companies on this 60th Anniversary Year.

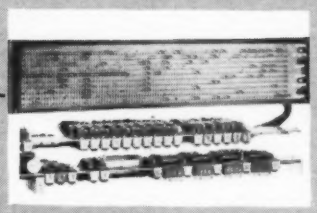
Other UNIVERSAL Telephone Equipment:
DIGIT ABSORBER for 2-5 Numbering
Code-to-Selective RINGING CONVERTER

INDEPENDENT

UNIVERSAL 100% COMPUTER INTERCEPT

DIRECT DISTANCE DIALING
DEMANDS 100% INTERCEPT

"YOU HAVE DIALED A NON WORKING NUMBER"



Buy the ultimate requirements in intercept equipment. Not "merely adequate" . . . not 20% . . . not 99% . . . but 100% intercept is the ultimate requirement for direct distance dialing. Universal Computer Intercept offers 100% intercept at nominal cost, compatible with any make switchboard, and easily inserted anywhere in the dialing train. The unit is completely factory wired and may be installed by regular maintenance personnel. Simplicity of design lends to minimum maintenance requirements.

CHECK THESE ADDITIONAL BENEFITS OF UNIVERSAL COMPUTER INTERCEPT

- ✓ Increase Schedule A Commissions.
  Your TPL will have the effective features o
  TPS intercept *to add to* your toll settlement
- ✓ Increased Revenue through Increased Trun
  Usage Time.
  Reduce the repeated attempts on long-hau
  toll calls that keep valuable toll switchin
  apparatus tied up.
- ✓ Savings in Time and Material in Adding Inter
  cept Service to your Operation.
- ✓ Intangible Advantages.
  - Immediate intercept of calls to busy line
    for non-working or changed numbers o
    these lines.
  - Intercept of incoming toll calls by reques
    of customer or commercial departmen
  - Many others of commercial value.

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CONTROLS CORPORATION
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FIRM _____
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1555 WEST FOURTH STREET
MANSFIELD, OHIO

23 BRODERICK ROAD
BURLINGAME, CALIF.

1594 SOUTHLAND CIRCLE, N. W.
ATLANTA, GA.

410 N. SYNDICATE AVE.
ST. PAUL 4, MINN.

165 PROSPECT STREET
PASSAIC, N. J.

XUM

HOW THE USITA FUNCTIONS

Continued from page 82

(3) Maintaining liaison with appropriate governmental agencies.

(4) Maintaining necessary contacts in Washington with executives of member companies.

(5) Making plans and arrangements for the association's annual convention.

Secretary and Engineer (George C. Richert): Before joining our staff in 1947 as association engineer, Mr. Richert was employed for 15 years by the Bell Telephone Co. of Pennsylvania in various capacities including commercial representative, sales engineering, and commercial engineering. During the war he served in Washington with the communications division of the War Production Board and as a communications consultant to various federal agencies. His duties are to:

(1) Act as secretary and keep the minutes and records of the association.

(2) Prepare statements of dues of member companies and make collection thereof.

(3) Act as engineer for the association and secretary of various technical committees.

(4) Conduct correspondence with member companies on engineering and technical problems.

(5) Supervise the preparation of the annual statistical report.

(6) Act as office manager, employ and supervise all clerical personnel.

Director of Information (Leon F. Roberts): Mr. Roberts after serving as mayor of Jamestown, N. Y., was for five years commercial manager of the Jamestown Telephone Corp. He then joined the Gary Group in Chicago as general representative. Later he became vice president in charge of commercial activities and public relations of the Ohio Consolidated Telephone Co., and then assistant to the president of the Illinois Telephone Co. at Bloomington, Ill. From there he came to the USITA in February, 1955. His duties consist of:

(1) Preparation and release to news agencies of information to promote the interests of the Independent telephone industry.

(2) Coordination of the association's national advertising program.

(3) Writing member letters to the association membership.

(4) Membership solicitation.

(5) Coordinating USITA objectives with state association officers and their activities.

(6) Conducting correspondence with member companies on all matters except engineering, technical problems, legislation and association policy.

Toll Engineer (Mervin H. Alexander): Mr. Alexander joined our staff in April, 1956, coming from Taft, Cal., where he was general plant manager of the Kern Mutual Telephone Co. Previously, for 17 years, he was in the employ of the Pacific Telephone & Telegraph Co. During the war he served three years as a communications officer in the U. S. Air Force.

The duties of the toll engineer are to make continuing review of toll settlement arrangements and practices, and prepare procedures suitable for use by Independent telephone companies and the association's Toll Compensation and Settlements Committee in connection with studies to obtain data for the following purposes:

(1) To test the adequacy of compensation to Independent companies for expense in connection with the handling of traffic interchanged with Bell System companies.

(2) To test the adequacy of compensation to Independent companies for the use of facilities and equipment in handling business interchanged with Bell System companies.

The toll engineer also:

(1) Seeks participation by Independent telephone companies in toll studies and summarizes the data obtained from the studies.

(2) Analyzes the data thus obtained and prepares in the form of tables, charts, curves, etc., information requested by the Toll Compensation and Settlements Committee for use in negotiations with the Bell System.

(3) Makes studies of extended area service and other special service problems including private line, foreign exchange, teletypewriter, mobile and related services.

(4) Handles correspondence with Independent telephone companies relating to toll compensation matters.

Assistant Secretary and Accountant (Courtney S. Snyder): Mr. Snyder, a native Washingtonian, came with our association in 1952, following extensive accounting practice with several large industrial firms. His duties consist of:

(1) Preparing annual statistical volumes, including preparation of report form, checking returns from reporting companies, assembling data, and conducting correspondence with member companies.

(2) Developing data for use in preparing the association's budget.

(3) Supervising operation of bookkeeping department and preparing tax returns and other tax forms.

(4) Assisting on special assignments, including liaison with government agencies on accounting and allied matters.

(5) Preparing special statistics as required.

Everybody at the USITA has a full-time job. The workload increases in direct proportion to the growth, expansion, and increased scope of the operations of our member companies.

It would be impossible to discharge our various responsibilities without a competent, efficient secretarial and clerical staff. The USITA has such a staff, composed of the Misses Mary Kidd, Mathilde Bodkin, Mary Jane Rawson, Betty J. Hayes, Marjorie Richardson, and Barbara Hyde, and Mrs. Mary Dellinger.

Suffice it to say that the Washington headquarters are constantly on the alert to be of service. They are continually patrolling many outposts. They try to keep the association geared to the needs of a dynamic, growing industry so that as a trade organization it may successfully meet the challenges of the future.

The importance of Independent telephone companies to the social and economic welfare of the nation becomes at once apparent when we realize that these 4,400 companies provide service to 10,870 cities and towns and two-thirds of the geographical area of the country. As of Aug. 1 these companies had a plant investment of $2,323,052,000, served 9,111,763 telephones, and had 100,000 employes and more than 200,000 stockholders.

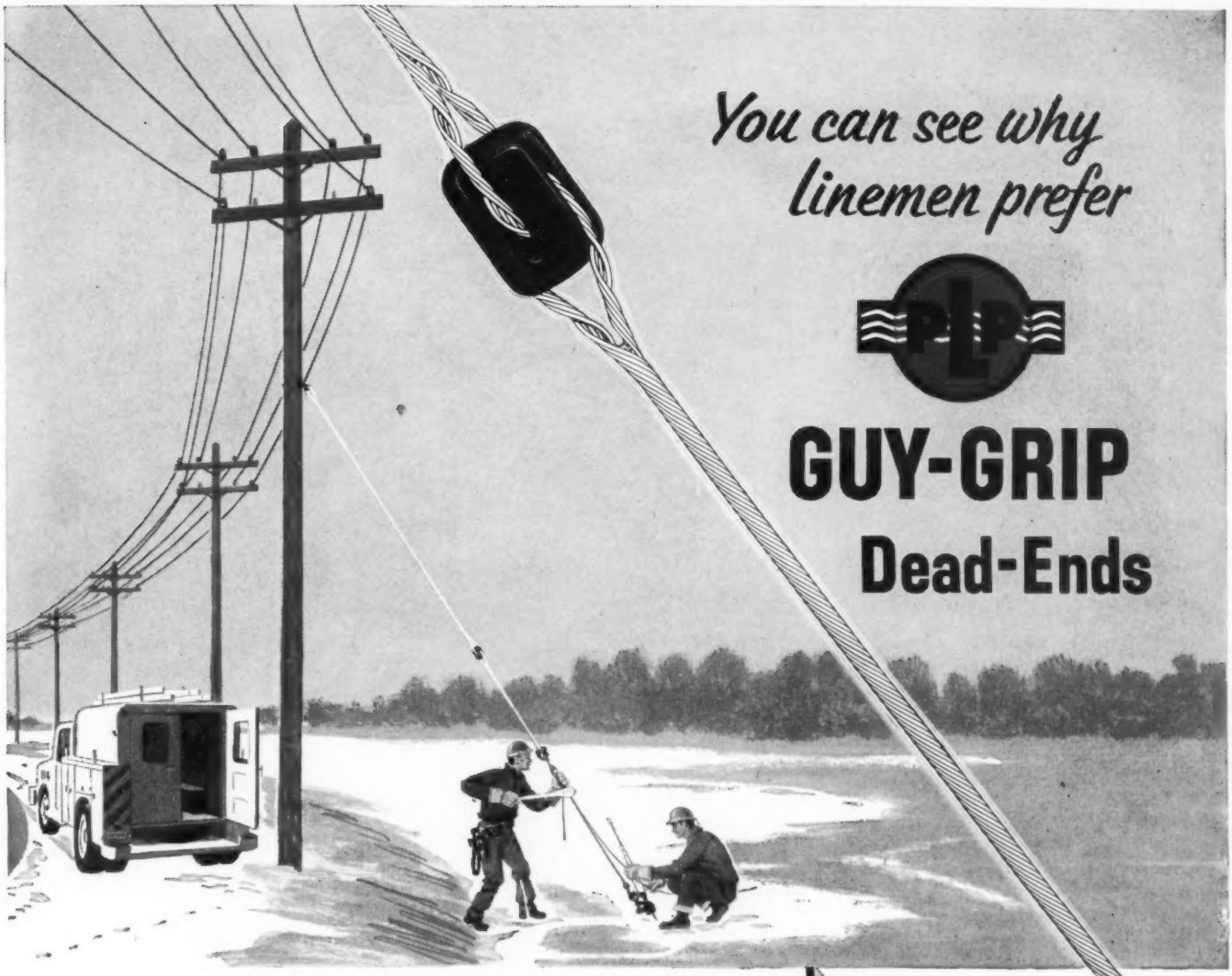
Without the Independent companies the communications network of the nation would not be a complete one. That these companies will have a continuing role to play in providing an essential service to a vast part of America is of course taken for granted. Our Bell System friends cannot do the job alone.

There was a time in the early history of our industry when rivalries existed between Bell and Independent companies and when it may have looked uncertain whether Independent companies could weather the storm. Those days are past. Today, warm and cordial feelings characterize the relationships between the two branches of the industry.

Representatives of Independent and Bell companies feel free to call upon each other for consultation, advice and the interchange of ideas. The vice president of the American Telephone & Telegraph Co. 25 years ago told our annual convention:

"I say without any question or equivocation or hesitation that in our (Bell) judgment, it is to the interest of the two groups, it is in the interest of the industry and is in the interest of the public that there should continue to be two strong, powerful groups in the industry."

(Please turn to page 86)



You can see why linemen prefer

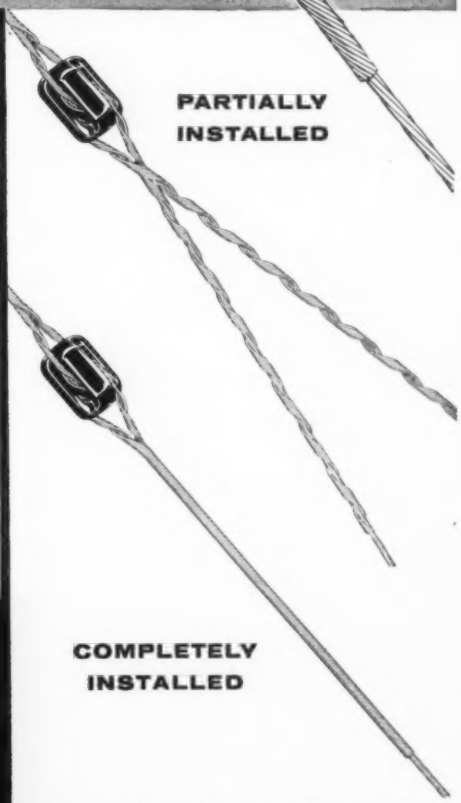
GUY-GRIP Dead-Ends

Linemen are enthusiastic!

PLP GUY-GRIP dead-ends are the easiest, fastest and safest method yet devised for dead-ending strand.

Installation is easy because it takes just one unit, no moveable parts, no bolts or clamps to tighten. It's fast. All you do is hand-wrap the dead-end legs around the strand.

And it's safe. You can see at a glance that the installation is completed and thus secure. Linemen make better time, take pride in their work.
Dept. No. TR2B



PX-81

PREFORMED LINE PRODUCTS CO.
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TELEPHONE: CLEVELAND EXpress 1-3571

Made in accordance with or for use under U. S. Patent No. 2,761,273; other patents issued and pending.

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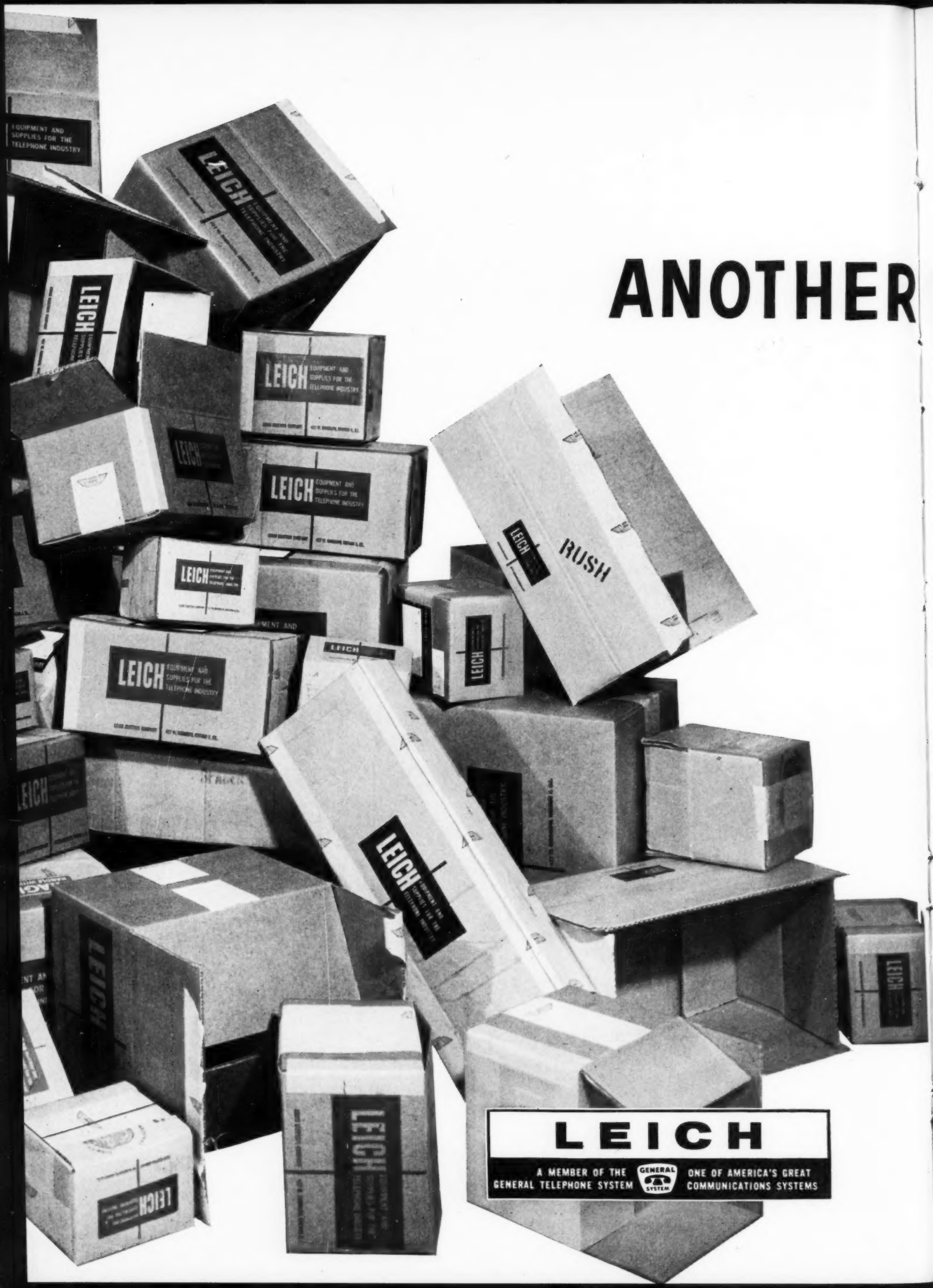
ANOTHER
LEICH
RUSH
LEICH
A MEMBER OF THE GENERAL TELEPHONE SYSTEM
GENERAL SYSTEM
ONE OF AMERICA'S GREAT COMMUNICATIONS SYSTEMS

ER HAPPY CUSTOMER!

the quality was right-

the price was right-

the delivery was right-

and <u>every</u> single item was

ordered from <u>one</u> source!

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You can depend on Leich supplies — they are all made by famous manufacturers. Each and every one has been proved on the job. For your further protection, *everything* is fully guaranteed.

Our customers know that Leich's prices are competitive with all . . . and less than many. Then too, you save money by using the best tools and materials.

Your orders are handled promptly and efficiently by experienced people . . . filled exactly as you have requested. And . . . delivery is made *where* and *when* you want it.

Everything you need—tools, hardware, wire, cable, protection equipment, aluminum telephone booths, Electronic Secretaries can be obtained from your Leich warehouse. By stocking a complete selection, Leich is always able to fill your immediate needs.

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HOT!

the NEW SUPERHEAT

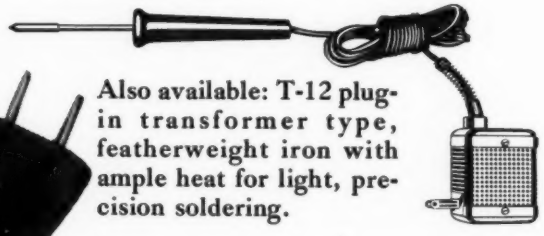
American Beauty T-30

. . . transformer type electric soldering iron for precision production work requiring maximum heat.

Here's the soldering iron you've been looking for! Lightweight, pencil-slim, beautifully balanced, quality-built and HOTTER than a Jet tailpipe.

T-30 gives you—

- Quick, ample heat (30 watts). Fast recovery.
- Cool, fracture-resistant handle.
- Interchangeable sizes and shapes of tip-elements.
- Top quality, plug-in transformer (110 or 220).
- Rubber covered, flexible snag-proof cord.



Also available: T-12 plug-in transformer type, featherweight iron with ample heat for light, precision soldering.

AMERICAN ELECTRICAL HEATER COMPANY

American Beauty ELECTRIC IRONS SINCE 1894

165-H DETROIT 2, MICHIGAN

Life in the telephone industry is always exciting and challenging. So it is with the USITA naturally enough because it, we like to think, is part of the telephone vineyard.

Welch Prepares History

Some of the more outstanding features of the history of the Independent telephone movement were interestingly described in 1947 by E. C. Blomeyer in a pamphlet entitled "50 Years of Independent Telephony." In another pamphlet, issued as a part of our present 60th anniversary celebration, Francis X. Welch reviews "60 Years of the Independent Telephone Movement." It is proper to recall that participants in some of the most noteworthy events in that period have been officers or other representatives of the USITA.

If I were to name some of the most significant landmarks set by the association, monuments to its effectiveness over the years that shine with a luster which the crucible of time can hardly erase, I would mention these among others:

(1) The association's staunchly asserted position on the expiration of the Bell basic patents that Independent telephone companies have a right to develop and grow in a free nation unhampered by monopolistic desires of an entity that had preceded it because of rights inherent in patents since expired.

But for the fact that an organized group like ours was brought into being and put into the breach it is not too much to say that the road of Independent telephony would have been a much more rugged and uncertain one.

(2) The association's leadership in obtaining, in 1913, what came to be known as the Kingsbury Commitment under which, in a letter from the AT&T to the attorney general, the Independents were assured that inroads would not be made into their business through property acquisitions except in certain cases. This commitment went far toward preserving an Independent telephone industry.

(3) The association's leadership in encouraging the passage by Congress of the Willis-Graham Act in 1921 giving the Interstate Commerce Commission jurisdiction to pass on telephone property acquisition cases. (When the FCC was created in 1934 this authority was transferred to it.)

The trilogy of events described in this paragraph and in (1) and (2) were fundamental to the preservation of an Independent branch of the telephone industry. But for these occurrences there might not have been an Independent segment of the industry worthy of the name.

(4) The association's leadership, when the Communications Act of 1934 was under consideration, in obtaining a provision exempting Independent telephone companies from the FCC's jurisdiction, unless they had a toll

17 toll calls... billed in a minute

Recordak System eliminates description on bill!

HERE's all you do to bill 17, or even more, toll calls in one minute—just add up ticket charges . . . list total and tax on bill—then photograph both tickets and bill in a Recordak Microfilmer! The job's done in a fraction of the time previously needed.

Original toll tickets are sent to customer with the bill. You keep a complete picture-perfect film record at your finger tips.

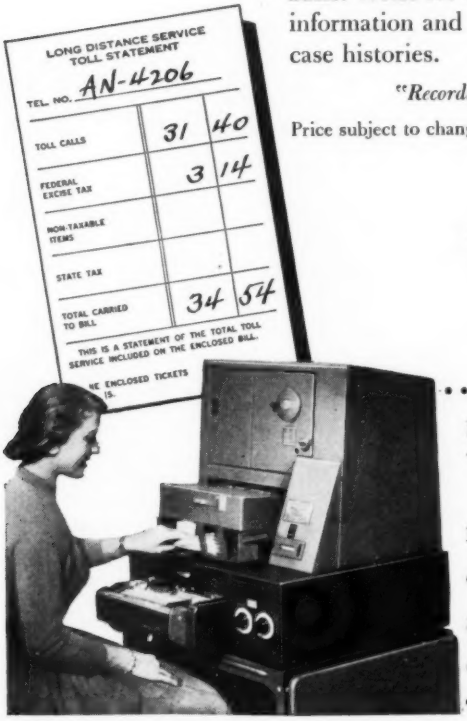
Result—billing costs are cut 45% or more . . . tedious transcription work is eliminated . . . chances for errors are sharply reduced.

Subscriber's questions are answered in advance by detailed information on original toll tickets. Charges are readily recalled . . . bills are paid without fuss or delay.

More than 300 telephone companies are now using this system. All you need is a Recordak Microfilmer which sells for as little as $550, and is also available on a low-cost rental basis. Write for detailed information and copies of actual case histories.

"Recordak" is a trademark

Price subject to change without notice


LONG DISTANCE SERVICE
TOLL STATEMENT
TEL. NO. AN-4206
TOLL CALLS 31 40
FEDERAL EXCISE TAX 3 14
NON-TAXABLE ITEMS
STATE TAX
TOTAL CARRIED TO BILL 34 54
THIS IS A STATEMENT OF THE TOTAL TOLL SERVICE INCLUDED ON THE ENCLOSED BILL.

RECORDAK

(Subsidiary of Eastman Kodak Company)

originator of modern microfilming—now in its 30th year

MAIL COUPON TODAY

RECORDAK CORPORATION CC-9-2
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Gentlemen: Please send folder describing Recordak Toll Billing System in detail.

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Company_____

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City_____ State_____

line extending across a state line or by stock ownership were under control of a Bell company.

This exemption has saved Independent companies tremendous costs in time, money and headaches they would otherwise have encountered by being subjected, in addition to state control, to distant regulation by a federal bureau in Washington. This exemption was broadened at the request of the USITA in 1954 to protect Independent companies from FCC jurisdiction even when using radio in telephone operations.

(5) The association's leadership in obtaining, in 1939, an amendment to the Fair Labor Standards Act exempting switchboard operators at telephone exchanges with less than 500 stations from the minimum wage and maximum hour provisions of the law. At the request of the association the exemption was broadened 10 years later, in 1949, to apply to exchanges up to 750 stations. But for this salutary exception from the rigors of a statute enacted during the Roosevelt administration, there is no doubt that many Independent telephone companies would have been driven to the wall.

(6) The association's leadership in negotiations on toll compensation with the Bell System. This is one of the most important past, current and rewarding fields of USITA activity. On an annual basis the compensation to Independent companies on toll business interchanged with Bell System companies now amounts to 163 million dollars compared with 12 million dollars in 1935.

While much of the increase in the intervening years is due to the increased number of telephone subscribers and resulting increased traffic volume, a substantial part is certainly due to the hard work of the USITA acting through its Toll Compensation and Settlements Committee. To speak of only two years, in 1953 an annual increase in compensation amounting to 18 million dollars was negotiated with the Bell System, and in 1956 an annual increase amounting to 11 million dollars.

(7) The association's leadership in recognizing the need, making plans for and conducting beginning in 1954 a nation-wide advertising program designed to acquaint the American people with the rapid growth of the Independent telephone industry, give Independent telephone company employes a sense of belonging to an essential industry, and open new avenues of private capital in order to finance large expansion and improvement programs of our companies.

Fiscal Affairs Sound

Notwithstanding the broad scope of its work, the association under a dollar

(Please turn to page 93)

The departmental conferences held during the USITA convention—Accounting, Engineering, Commercial, Plant and Traffic—give convention-goers a good opportunity to hear about new developments and techniques in these fields and to find solutions to problems arising in day-to-day operations. Here are the chairmen who will conduct these important sessions.

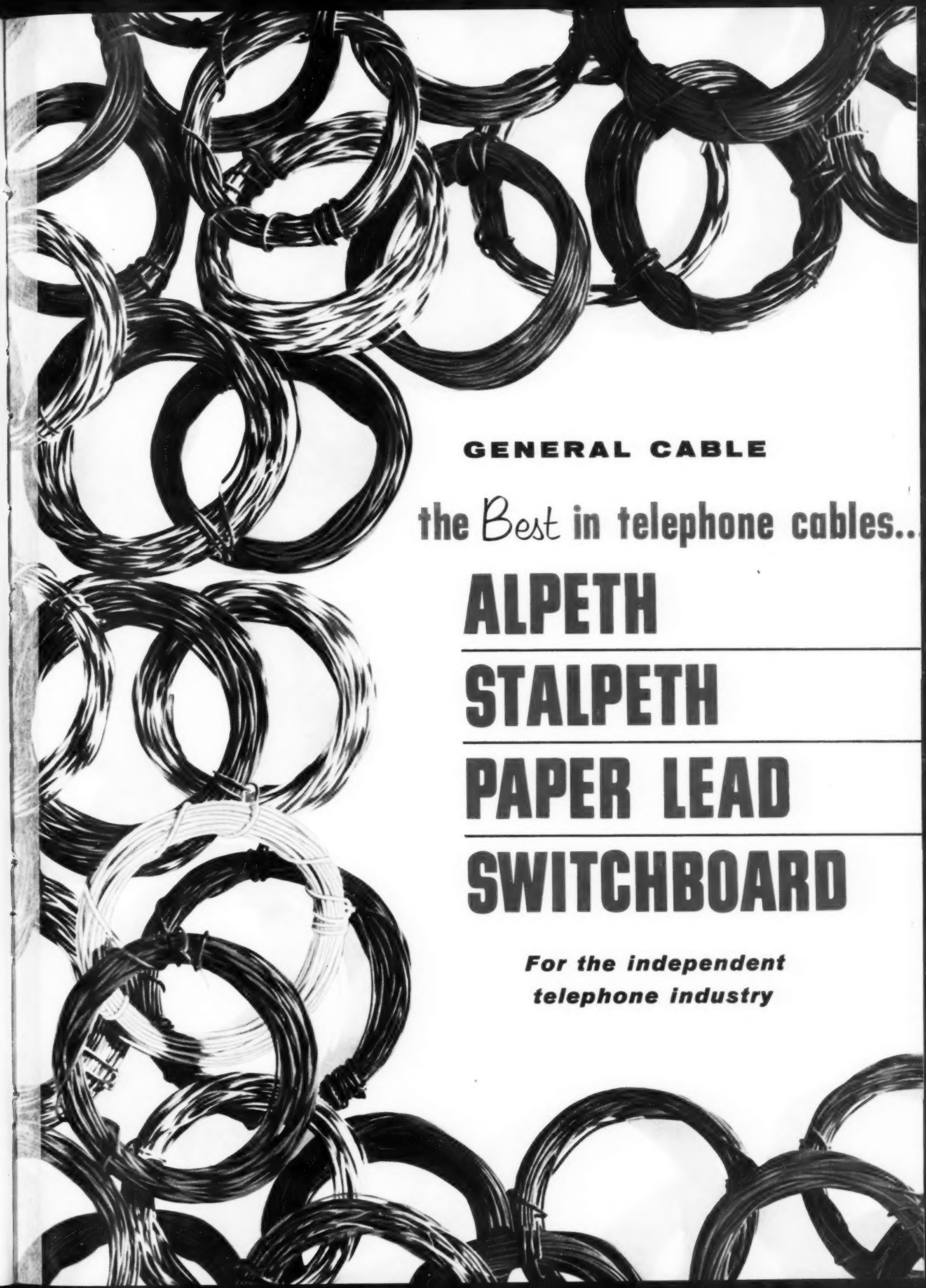
P. H. HENSON
Engineering

H. P. SIEBKEN
Plant

K. L. LAWSON
Commercial

O. M. WESTRUP
Accounting

HERMAN KLEINHAMMER
Traffic


GENERAL CABLE
the Best in telephone cables..
ALPETH
STALPETH
PAPER LEAD
SWITCHBOARD
For the independent
telephone industry

Go Modern

...with GENERAL CABLE

Yes, you can "go modern," for General Cable is producing the truly up-to-date telephone cables. To keep pace with the ever-expanding independent telephone industry, new designs and products, backed by over 75 years of manufacturing experience, are continually being produced by General Cable. These new cables and the "old reliables," such as paper-lead, make up the widest range of telephone cable available to the industry.

STALPETH

Excellent performance plus moisture and weather protection for the paper insulated cable core is assured by a combination of four features:

1 **a corrugated low-resistance aluminum shield**

2 **a corrugated steel tape with overlap seam soldered**

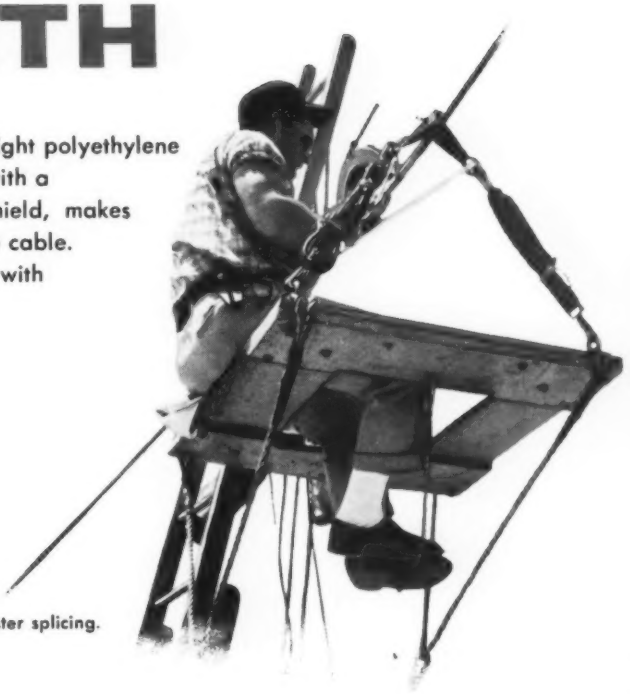
3 **a flooding compound**

4 **an extruded high-molecular-weight polyethylene jacket**

This light weight cable permits longer spans or smaller messengers. Fewer splices on duct runs are possible because of longer pull-thrus.

ALPETH

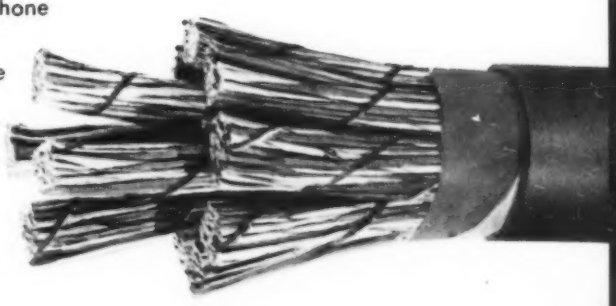
An extruded high-molecular-weight polyethylene jacketed *and insulated* cable, with a low-resistance aluminum tape shield, makes for the best in plastic telephone cable. This cable is *fully color coded,* with all pairs guaranteed.



Full color coding means easier and faster splicing.

PAPER LEAD

The quality of General Cable's paper insulated lead sheathed telephone cable has been recognized over the years. The same high quality of cable core is maintained, regardless of the sheath design, through rigid manufacturing controls, testing and material specifications. Excellent electrical performance is built into the cable core by means of planned engineering design.



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THE *Newest* AND *Best* IN

SWITCHBOARD CABLE

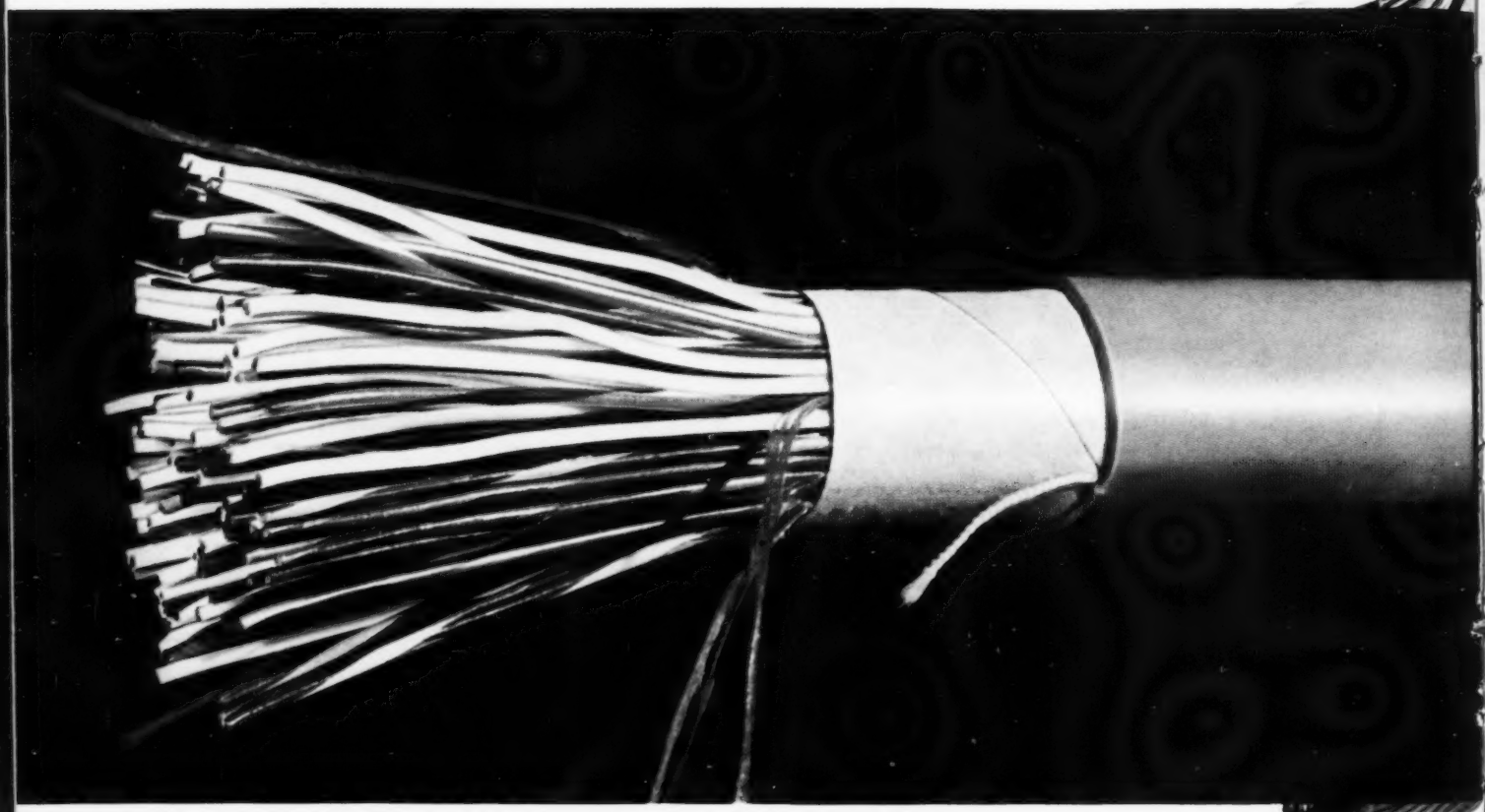
BRAND NEW SEMI-RIGID PLASTIC INSULATION

The conductors of this new switchboard cable are individually insulated by simultaneous spiral extrusion of fully color coded plastic. These bright, permanent and non-migrating colors can't wear off: they extend clear through the insulation. And that's not all! The plastic insulation is tough and see how quickly the conductor is ready for soldering: no enamel to scrape, no frayed thread ends to create fire hazard or collect dust.

Compression resistance of this new plastic insulation is twice that of textile — *five times* that of earlier plastics. Dielectric breakdown strength — three times greater than textile, under humid conditions. Insulation resistance — at least ten times that of textile under humid conditions.

A tough, moisture-resistant PVC jacket shrugs off shipping and installation abuse. Sheath strips easily and freely with the nylon rip cord.

General Cable Switchboard Cable is standard on all Automatic Electric Sales Corporation and Leich Sales Corporation central office equipment.



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Telephone cable with a light weight aluminum sheath which is continuously extruded directly over the cable core.

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conscious board of directors has kept its fiscal affairs on a sound basis and membership dues to a minimum. On the basis of an annual budget of approximately $480,000, the cost of Association operation in 1957 will be but 74/1,000 of 1 per cent of estimated revenues of all Independent operating companies of 650 million dollars. If the revenues of dues paying member operating companies were alone considered, the percentage cost of association operation would be 85/1,000 of 1 per cent.

The epoch-making milestones delineated above are transcendent. All the while the association has also been engaged in conducting many other activities. Most of these are positive and affirmative in nature, that is, they seek the accomplishment of a specific objective deemed necessary to the welfare of Independent companies. Some, especially in legislative matters, are negative, that is, they contemplate putting a brake on proposals deemed inimical to the welfare of Independent companies.

Included in the former category are almost myriads of subjects ranging from improvements in accounting procedures to relief from certain tax burdens. In addition to our full-time Washington staff, 22 regular committees, 14 regional small company committees, and 10 sub-committees are functioning daily each with duties carefully assigned in an outline of jurisdiction prepared in the interest of avoiding overlapping. Studies relating to direct distance dialing, presenting testimony before the FCC in support of common carrier radio frequencies, investigation of the feasibility of increased mechanization in accounting and other operating practices, liaison with the military on the SAGE and other defense communication projects, research into standardization of certain plant items—these are all just a part of the current work load.

Another item in the positive category is an effort to obtain from Congress an increase in the allowable amount of securities that may be issued without observing the expensive registration requirements of the Securities and Exchange Commission. An effort to obtain repeal of the inequitable excise tax on telephone calls is still another current activity.

Mention should be made of amendments to the Federal Aid Highway Act last year authorizing under certain conditions reimbursement of costs incurred by telephone companies and other utilities in moving their facilities when highways are constructed. This was a big legislative victory carried on in cooperation with other interested groups. If implemented by local state legislation it will save our companies millions of dollars.

Worked on RTA Bill

As an illustration of association activity involving the defeat of harmful proposals I may mention the provisions in the 1949 Rural Telephone Bill, which, if enacted into law, would have opened the door to government ownership in the telephone industry and authorized the building of competitive telephone plants in individual communities, some to be operated by municipalities.

Another piece of legislation successfully opposed was a bill, otherwise meritorious, which would have placed on telephone companies the burden of showing that telephone calls were not being made in pursuance of gambling operations. This would have been an utterly impossible task, annihilating traditional intimacy and privacy of telephone conversations and in addition serving as an entering wedge to a nation-wide communication censorship.

Still another harmful bill successfully opposed was one to authorize the minting of fractional coins several years ago. This was opposed on the ground of interference with the hundreds of thousands of public telephone coin boxes in use throughout the country.

It is scarcely necessary to add that standing guard over the exemption in the Wage-Hour Act until dial conversions eliminate the basis for its need, continues to be a vital association duty. The list of other items could be extended almost without end. I can only hope that what has been said is sufficient to indicate in a general way the nature of the problems with which the USITA deals.

In the carrying on of its vital functions, the USITA has had the benefit of the intelligent aid and advice of the state associations. No words of praise from me could adequately portray the value of the cooperation that has been available from these local groups, 34 in number. The state secretaries spare no pains in putting their shoulders to the wheel in common causes. I have found that they are dedicated people.

Any review of the association's work would indeed be incomplete which failed to pay a tribute to the warm, consistent and always helpful cooperation and support received from our industry publications. The editors and other officials of TELEPHONY and Telephone Engineer have been generous in using their pages to assist in carrying a torch when it has been needed. Our industry is indeed fortunate in the high quality of the editorial and informational content of these magazines and the calibre of the men who produce them.

In concluding this assessment of the work of our national organization and its record of accomplishment over the years there comes to mind *Matthew* 7:25:

"And the rain descended and the floods came, and the winds blew, and beat upon that house; and it fell not for it was founded upon a rock."

Senators Praise Service Of Capitol Operators

Two U. S. senators praised the capitol telephone operators as Congress adjourned. The following is an excerpt from the Congressional Record of Aug. 30:

MR. AIKEN (Sen. George D. Aiken, Vt.). "I should like to pay tribute to the employes who have made it possible for the Members of the Senate to do as good a job as they have done in the past session, but we ought not to forget the Capitol telephone operators. Even though at times they find us when we think we are safely hidden away somewhere, that is compensated for by the fact that they also find people we are looking for when we do not have much of an idea where to look for them. I think the ability of the telephone operators of the Capitol to get their men equals if it does not excel, that of the Royal Canadian Mounted Police.

MR. KNOWLAND (Sen. William F. Knowland, Cal). I quite agree with the distinguished Senator from Vermont. I would, of course, like to add —and I know I can speak on behalf of all Members of the Senate on both sides of the aisle—that while my remarks today were directed primarily to those who operate the Senate in its entirety, or on the majority or minority side, I am sure we would also want to pay tribute to our individual staffs as Senators, because without the burdens they carry and the long hours they toil it would not be possible for any Senator to continue to perform his public duties and have the tremendous volume of work and mail and other details taken care of. It is a loyal service which we receive from each of our national staffs.

Economics of Moving

"The only sound reason for moving an industry in the United States—to California, Texas, Mississippi, North Carolina, or anywhere—is that, by finding a favorable combination of resources and skill, it is better able to serve the consuming public of the United States."—JOHN C. WHITAKER, *chairman of the board, R. J. Reynolds Tobacco Co.*

A Selected List of Telephone Books

• ***CABLE—Modern Methods of Fault Location, Installation and Splicing.*** **Published by Telephony Publishing Corp.**

80 pages—8½ in. x 11 ins. The only cable book on the market. Prices: One to 5 copies, $1.75 each; 6 to 25 copies, $1.60 each; 26 to 50 copies, $1.45 each; over 50 copies, each.....$1.30

Reprint of 19 installments of article entitled "Cable Splicing," by Daniel Seitz, published in TELEPHONY. It is the only cable book on the market. Covers (1) the history of the development of cable; (2) composition and manufacture of cable: (3) modern methods of installing aerial, underground and building cable; (4) techniques and detailed instructions for splicing cable; (5) methods of locating and clearing cable faults; (6) instructions for pressure testing of cable.

• ***Electrical Principles Used in Carrier Systems,*** **by Harold B. McKay; 44 pages; illustrated; size 8¼" x 11¼". Prices: 1 to 100 copies, $.75 each; 101 to 200 copies, $.70 each; 201 to 300 copies, $.65 each; 301 to 400 copies, $.60 each; 401 to 500 copies, $.55 each; 501 to 1,000 copies, $.50 each; over 1,000 copies, $.40 each.**

A reprint of nine popular articles which appeared in TELEPHONY. The scope of the articles include vacuum tube principles, suggestions for a new way of thinking about electrical circuit components, actual parts and functions of carrier systems and a guide to trouble shooting on carrier equipment. It is ideal for use in training schools. The author has been in the radio and telephone communications field since 1920 and has had a broad experience in carrier design and operation.

• ***Glossary of Telephone Words and Terms,*** **by Emerson C. Smith, 54 pages; size 4" x 8¾". Prices: 1 to 101 copies, $.50 each; 101 to 1,000 copies, $.45 each; 1,001 to 5,000 copies, $.35 each; 5,001 to 10,000 copies, $.30 each; over 10,000 copies, each $.25.**

A reprint of five installments published in TELEPHONY. It includes definitions of 1,140 words and terms used in the telephone business. It is the only telephone glossary available. It was compiled by Emerson C. Smith, consulting engineer of Honolulu, Hawaii, who has had 26 years of experience in the technical and engineering phase of telephony.

• ***Glossary of Telephone Abbreviations,*** **by John A. Bracken, 24 pages; size 4"x8¾". Prices: 1 to 101 Copies, $.50 each; 101 to 1,000 copies, $.45 each; 1,001 to 5,000 copies, $.35 each; 5,001 to 10,000 copies, $.30 each; over 10,000 copies, each $.25.**

A reprint of two installments published in TELEPHONY, this list of 1,075 abbreviations used in the various phases of telephone work was compiled by John A. Bracken, veteran telephone man. Examinations were made of the various abbreviations used by some of the larger companies, including Bell System companies to save time and space in the formulation of reports and records, and the glossary was compiled for the benefit of those companies considering the adoption or expansion of a system of abbreviations. The abbreviations presented consist of parts of a word, as a substitute for the whole word, and are arranged alphabetically.

• ***ABC of the Telephone,*** **published by Telephony Publishing Corp.**

Vol. I. 84 pages—8½ ins. x 11 ins. Prices: One to five copies, $1.50; six to 25 copies, $1.35 each; 26 to 50 copies, $1.20 each; 51 to 500 copies, $1.05 each; 501 to 1,000 copies, $.95 each.

Reprint of first 21 installments of article by Frank E. Lee which appeared in TELEPHONY. Covers fundamental information concerning electrical circuits, telephone transmitters and receivers, induction coils, generators, ringers, relays, line protection, dials, automatic switching, drop wire installation. Particularly beneficial to beginners.

Vol. II. 78 pages. Prices same as for Vol. I.

Covers sub-station protector installation, station wire installation, subscriber station installation, fault locating, relay circuits, planned maintenance program, electronic testing of cable and drop wire, crosstalk and transmission developments, attenuation and loading coil theory.

• **Vol. III. 125 pages. Prices: One to five copies, $2.50; six to 25 copies, $2.25 each; 26 to 50 copies, $2.00 each; 51 to 500 copies, $1.75 each; 501 to 1,000 copies, $1.60 each.**

Reprint of 31 informative articles by Frank E. Lee which have appeared in TELEPHONY since the publication of Volumes I and II. The easy-to-read and easy-to-understand chapters cover a broad range of vital topics, including storage batteries, metallic rectifiers, electronic tubes, multiple line key equipment, carrier circuits, community dial offices, how to read circuit drawings, and many other helpful and important subjects. Illustrated with drawings and photographs.

• ***Telephone Handbook of Standard Outside Plant Construction Methods—Book No. 1.*** **Published by Kellogg Switchboard & Supply Co., 6650 S. Cicero Ave., Chicago, Ill. 365 pages (illustrated).....$3.50**

Covers standard outside plant construction practices, pertaining to pole line and long span construction. Seven sections are subdivided into more than 100 parts. Subjects are cross-indexed.

• ***Fundamentals of Telephony,*** **by Arthur L. Albert (1943) 366 pages.....$6.00**

This elementary book, intended for beginning students and for telephone workers, is devoted exclusively to telephone communication. The first four chapters present briefly the principles of electricity and acoustics upon which telephone practices are based. The book then considers the following subjects: Telephone transmitters, receivers, telephone sets and circuits, telephone lines, manual telephone systems, dial telephone systems, loading, telephone measurements, noise and cross-talk, and repeaters and carriers.

• ***Electrical Fundamentals of Communication, by Arthur*** **L. Albert (1952); 554 pages.....$7.00**

This book deals with fundamentals of electricity as applied to communication, including telegraphy, telephony, and radio. Contains basic electric circuits and phenomena using illustrations, terminology and problems from communication industry standpoint. Contains tables and 359 excellent drawings; is nonmathematical and clearly written for communication people having little or no college training. Especially suited for use in telephone training courses for new employes. Also valuable for employes who wish to extend their knowledge of electricity. A summary as well as review questions and problems given at end of each chapter.

• ***An Introduction to Carrier Current Communications, by*** **J. H. Petrie and H. E. Clapham; 136 pages.....$3.00**

Provides a clear understanding of the basic principles underlying carrier telephony and telegraphy. Couched in everyday language, the subject matter will be readily understood by anyone having elementary electrical training, or experience in electrical communications.

• ***Electrical Communications,*** **by Arthur L. Albert (1950); 581 pages (third edition).....$7.00**

Presentation of electrical theory of communication, including vacuum tubes, networks, filters, and discussion of entire industry. Various subjects considered as related to one another in modern communication systems. Designed as a college textbook and reference book for those having technical training. Others will find much of value in it, as use of mathematics has been limited but not at a sacrifice of engineering exactness.

• ***Automatic Telephone Practice,*** **by Harry E. Hershey (1954); 416 pages (seventh edition).....$10.50**

Generously illustrated, well-organized, this book is a complete reference work covering Strowger equipment. Five sections are devoted to automatic equipment: (1) Detailed explanation of equipment without reference to circuits; (2) historical background of systems; (3) fundamental elements appearing in all telephone and non-telephone circuits; (4) detailed study of typical modern circuits with each circuit analyzed contact by contact; (5) standard adjustments covering switches and relays; (6) certain procedural steps involved in engineering, manufacturing and installation of a typical Strowger office; (7) mechanics of termination, distributing frames, terminal assemblies, etc.; (8) relay design; (9) use of telephone type relays and switches in the industrial control field.

• ***Inductive Coordination of Electric Power and Communication Circuits.*** **by Laurence Jay Corbett (1936): 161 pages.....$1.75**

This excellent book discusses the nature of power transmission and of communication transmission, the effect of magnetic and electric induction and various influence factors. Susceptiveness and coupling factors, effects of conductor arrangements, transpositions in power and communication circuits and their coordination, power system wave shape, control of residual voltages and currents and many other phases are discussed. This book should contribute to a fuller understanding by power and communication engineers of each other's problems.

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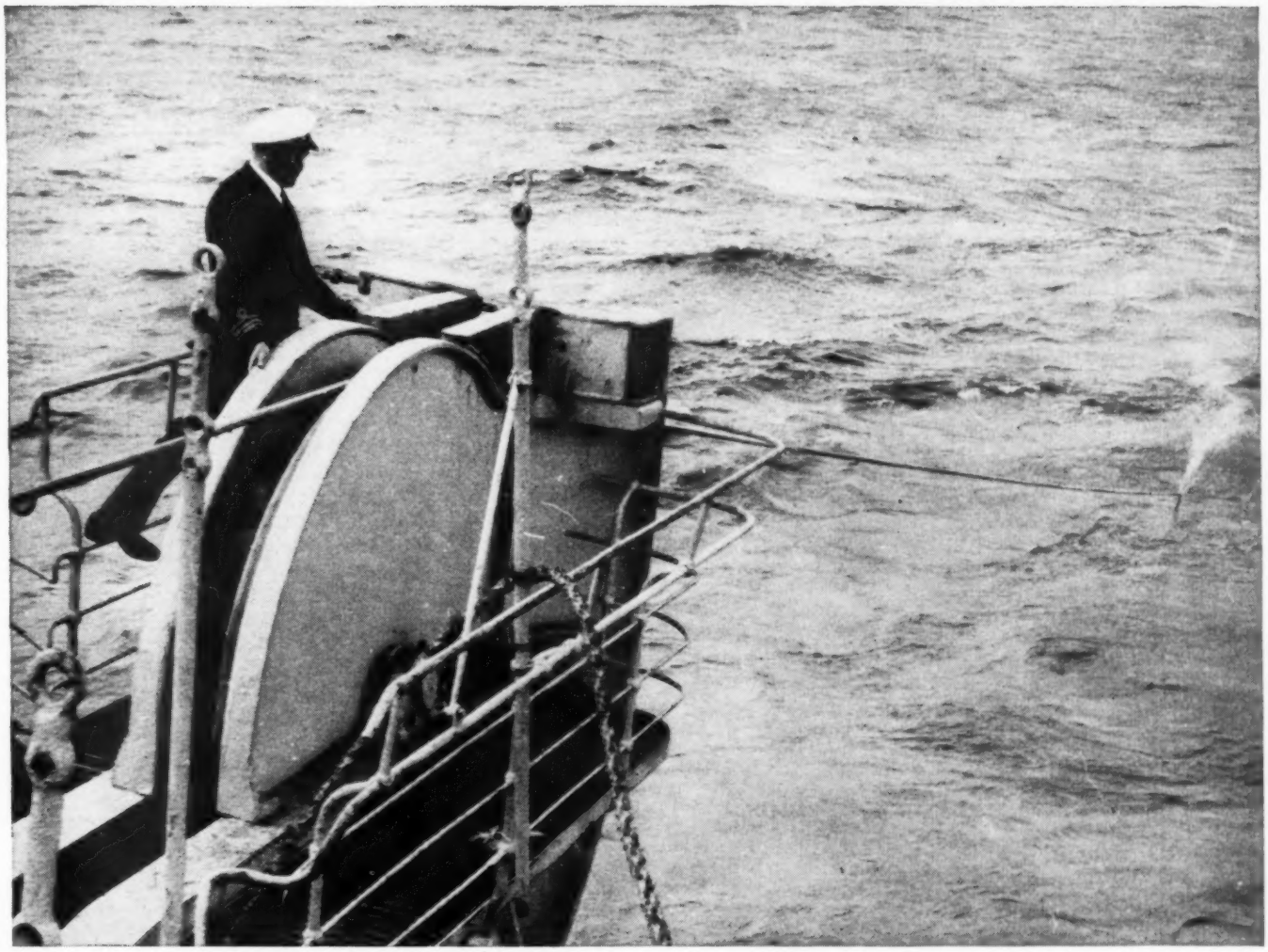

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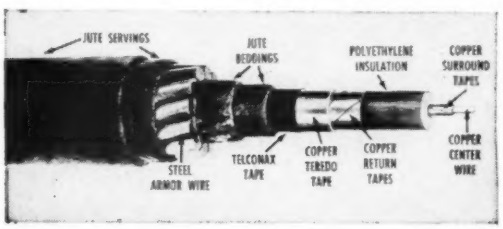

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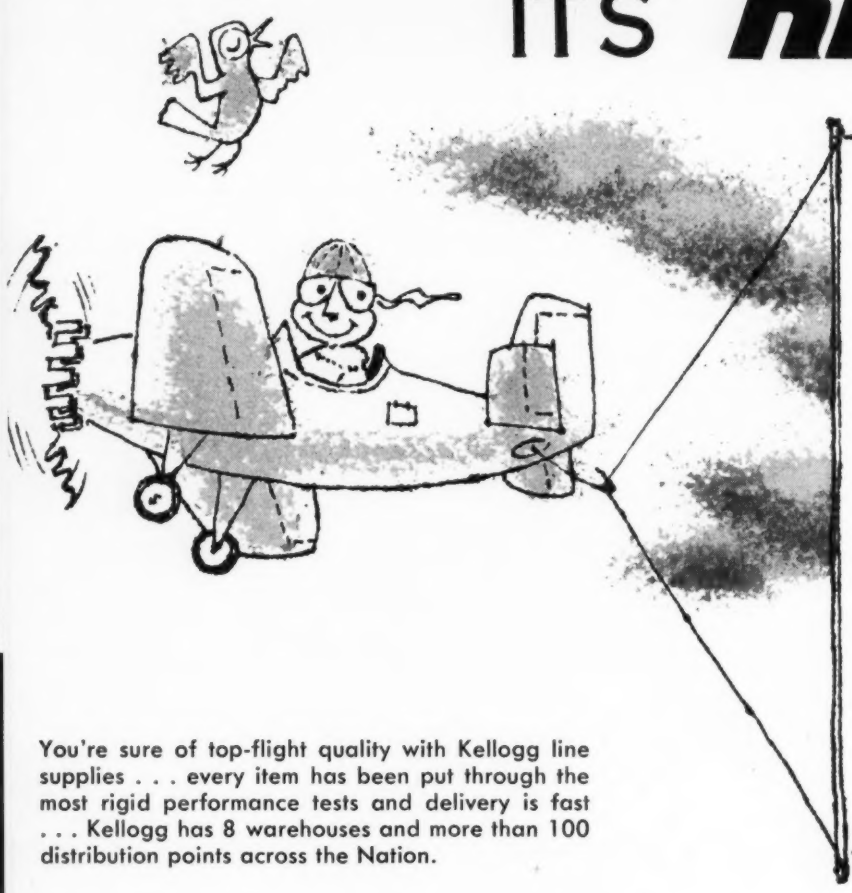

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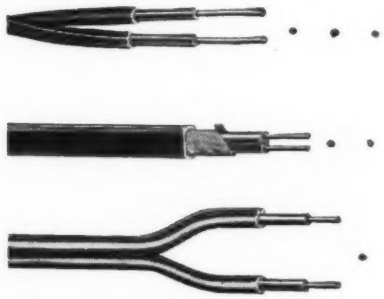

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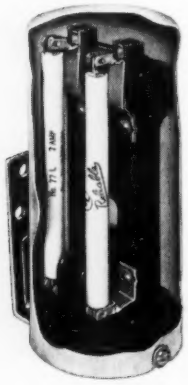

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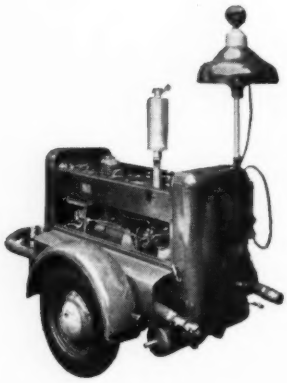

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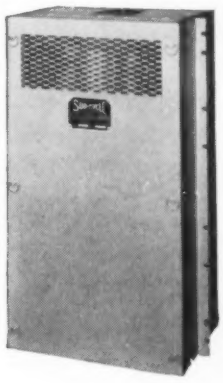

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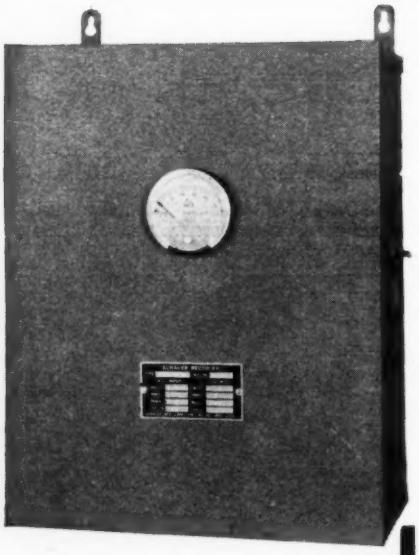

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IN THE NATION'S CAPITAL

Continued from page 28

factors as the following: Increasingly inadequate and more expensive schoolroom space; an increasing number of school children; increasingly inadequate force of qualified teachers, demanding higher wages and deserving them; and —contrary to all the foregoing — a growing burden of taxation and tax resistance.

It is entirely possible that by devising new educational techniques, making the maximum use of highly trained centralized teacher facilities, local teachers can be freed to broaden their class room responsibility by merely exercising supervisory, disciplinary or more or less clerical duties, such as checking examinations and attendance.

It has been more than 30 years since the late Al Smith, then governor of New York, started the trend away from the little red schoolhouse by taking the lead to establish a higher standard of public education through centralized school buildings to which even children living in the remote rural areas could be brought by buses. His idea was to abolish the old inadequate frame one-room country school where one teacher had to take care of a half-dozen grades.

As a result of that trend, we have our present system of million-dollar school buildings right out in the cornfields. We also have million-dollar fleets of buses, daily trucking the children up and down million of miles of highways, congesting traffic and otherwise contributing to highway hazards.

Improved communication techniques of the future could reverse this trend and bring us right back to the little red school house, where one teacher could take care of all the children in a number of grades through the magic of improved visual communication facilities. There is no reason why such children could not get the very best kind of an education from a centralized headquarters if the techniques were worked out.

Intelligent visual education can include many new features not possible in our present class rooms bound by blackboards and occasional film displays. In Hagerstown, Md., the telephony company is already cooperating in furnishing an experimental closed circuit TV system for the public schools so that one exceptional teacher can reach all the students in all the schools in the city at one time.

What has been said here about education in the public schools can be applied even more flexibly to higher forms of education. Law school students can sit in their class rooms and look at actual trials being conducted in civil and criminal courts miles away. Medical students can watch delicate and difficult operations of any given type through visual communications to far away hospitals and surgical clinics. They would not have to wait, as they do now, for such cases to occur in their own university hospital.

Language students can hear actual, living foreign languages being spoken by the natives of the country whose language they are studying. Music students can see, as well as hear, voices and instrumental performances with instructions keyed to their advancement.

One could go through the entire spectrum of lower and higher education and see marvelous possiblities in such visual aid instructions via communication systems. The application to industry and business of such techniques will be equally significant. Masses of business and financial data will be enabled to move instantaneously around to various terminal points from company headquarters or other dispatching centers. Weather reporting, material testing, remote control field observation of various kinds can be seen as well as heard.

The living habits of the future are quite likely to be altered by this steady shift to communication of intelligence and away from physical transportation of property or persons. People will be able to live comfortably, profitably, and well-informed in places which are almost uninhabitable today.

In the past 60 years, the telephone has become commonplace if not an indispensable feature in just about every home or place of business in the United States. In the years to come, there will be a tendency towards even more universatility of communication contacts. Not only every room in the house, but every person will be enabled to get in touch with the rest of the world through personal communication appliances if he wants to do so.

Already we see the forerunner of this in the so-called "paging" services now being conducted on an experimental basis in some areas for special types of subscribers—such as doctors and others expecting emergency calls.

Third, how will the new techniques fit into the telephone industry or vice versa? Mention has already been made of the important cases now pending before the Federal Communications Commission which will decide, to some

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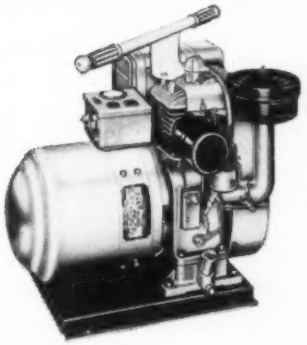

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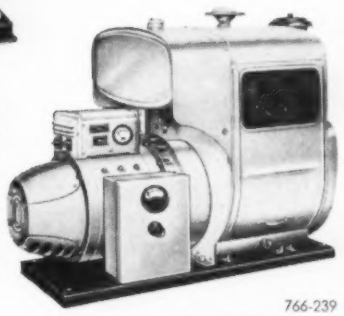

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extent, how big a share telephone companies, as such, will be permitted to have in such new fields as mobile radiotelephone service and microwave telephone frequencies. Already the Justice Department has intervened to limit the scope of the telephone industry's participation.

But if we take a longer look into the future, we will see that these newer forms of communications are *bound* to develop, whether through telephone companies or through newly-created communication agencies! That brings up the question of industrial organization. If telephone companies are to be rigidly confined to what we know as the telephone business today, their industrial horizons will then be limited.

What about the other commercial interest which will have to take over, in that event? Somebody has to render the new services.

Will the newcomers tend to become specialized and will they parallel, in a way, present-day telephone company organization? Is it not possible that the evolution of such specialized communication companies — whatever they might be called—would gravitate towards association with the telephone industry as such? Could it be that the future will develop many more, but somewhat different types, of Independent telephone company operations?

Or put it the other way. Suppose the die is cast in *favor* of the telephone industry. Suppose telephone companies are to be given the responsibility, or a large part of the responsibility, of developing many of these newer forms of communication for public use! Would it still not follow, with equal probability, that new additional company organizations would have to be created and expanded to take on the additional load?

Either way we try to figure it out—and there is naturally a tendency to hope that the decision will favor traditional telephone industry development —the future of the communications business is not only assured, but is absolutely staggering in its portending proportions.

Within the next 60 years the United States Independent Telephone Association could easily become one of the most powerful and influential forces in the industrial economy.

Fourth, how can the Independent telephone industry protect its own future? Much depends on the manner in which Independent telephone companies, and the Bell companies, are permitted and are willing to assume new responsibilities in the coming "age of communications." If progress can be made towards integrating the new communications techniques with present telephone industry operations, to that extent will the door be opened wide to telephone companies for fuller participation.

One of the arguments made by interveners in present cases before the FCC against telephone companies entering the mobile telephone service field is the fact that there has, so far, been no such integration, or attempted integration. As long as telephone mobile service, for example, is offered strictly as mobile telephone service, while conventional telephone service is offered strictly as telephone service, there is a natural regulatory tendency to put a dividing mark where the industry, itself, indicates it should be made.

Thus, a taxicab dispatching service, which has no relation to general telephone service, tends to become more of an adjunct of taxicab service than to telephone service. The cab driver speaks only to the dispatcher, and the dispatcher speaks only to the cab driver. The passenger cannot get into the act, such as calling his wife to delay dinner.

There are important policy reasons rather than technical reasons for maintaining such lines of division, in this field. But the point to be made here is that, if the telephone industry, *as an industry*, is to stake out its preserves in these new areas of communications, there will be more and more pressure to do this in the form of extending *present* telephone company system operations. True, starting some new, separate, and independent service by a telephone company may be the easier and more convenient approach. But it invites industrial division and discrimination from rival forms of enterprise.

The story is told of a superintendent of nurses at a certain medical clinic in an area where experimental paging service is now being conducted. This head nurse was being told how, if she wanted to call Dr. Jones on an emergency while he was at a ball game, she could call a central dispatching station which would send out a radio impulse. This, in turn, would activate a small device in the doctor's pocket through a coded signal. Then, he could telephone the dispatching center for the necessary message.

The whole deal would involve two or three telephone calls and one radio broadcast operation. "Why couldn't I just talk to him through his pocket device?" asked the head nurse.

The explanation was not very convincing, especially when she was told that the device could only give a buzzing sound or a tickling sensation so as to

(Please turn to page 103)

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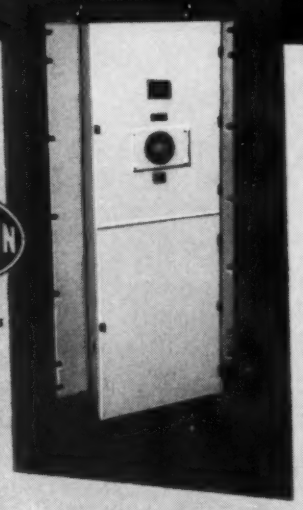

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Requirements for a Battery Charger

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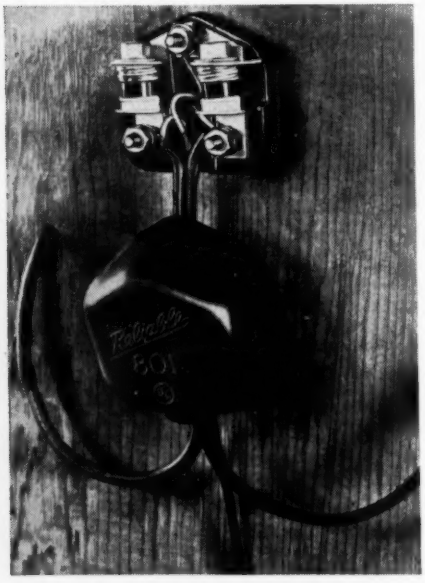
by Ernest P. Riviere, Jr., Inside Sales—San Francisco

The other day I chalked up my 5th year with Stromberg-Carlson—but one of the orders I filled that day made me feel pretty much a youngster in the business: I sent out a battery we promise will serve you for 25 years! That started me thinking about other equipment we supply. Here, the guarantee is a quarter century—there, it's for life, **period.** And always, the guarantee is a double one—ours, and the maker's. It made me realize again how much your orders mean to the science of telephony. It's your supply business that helps us continue our research for ever-better, ever-longer-lived telephone equipment. Thanks a lot!

Long life under all conditions

You get long service life under all kinds of weather conditions with the Series 800 Fuseless Protector, recently developed by Reliable Electric Company.



Easy to install and maintain

This new protector is available with Reliable No. 504 Protector Units (as No. 801) for station protection and with Reliable No. 506 Protector Units (as No. 801A) for cable protection.

The weather-tight neoprene cover has passed the Underwriters Laboratories severe requirements for performance and weathering under temperature extremes. The protector is listed under UL Re-examination Service.

The neoprene cover fits snugly and drops out of the way conveniently when protector is installed or serviced.

Paper-insulated Telephone Cable for unsurpassed performance

Kennecott Telephone Cable is made with conductors of 19, 22, 24 and 26 AWG annealed copper wire.

Each wire is insulated with (one or more wraps) of manila paper, or paper made from clear rope stock with suitable proportions of wood, pulp or cotton rag stock added.

The paper is wound in helical form around the wire. When two papers are used, they are applied in reverse direction.

Dry paper is used because of its excellent electrical and mechanical properties.

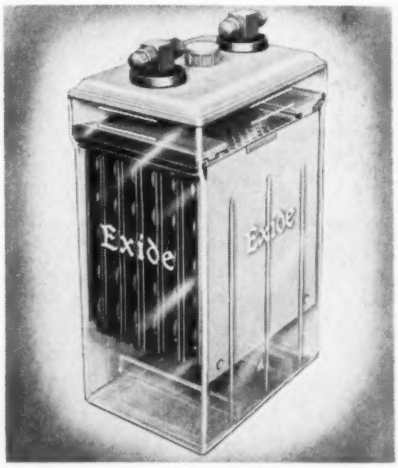
After insulation of the conductors, they are twisted together to form pairs, each wire of a pair being wrapped with paper of a different color for tracing purposes.

The twisted pairs are cabled together in layers, each layer being one pair thick. Alternate layers are cabled in opposite directions. The complete cable core is taped over with paper.

After removal of moisture by heat and vacuum, the cable is then sheathed with lead containing 1% antimony.

Reserve lead keeps battery young

Inside the unique lead buttons in an Exide-Manchex positive plate there's a coil of reserve lead designed to prolong battery life. Over the years, as this lead is needed, it goes into action, instantly and automatically.

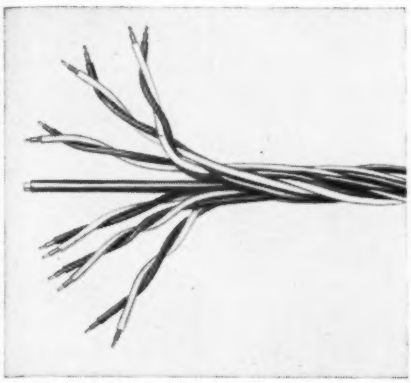


The unique thing about Exide-Manchex construction is that the reserve lead does not have to support the plate. The spiral lead buttons are tightly locked into a cast lead-antimony alloy grid several times more rigid than pure lead. Hence the reserve lead can be completely consumed while the plate retains its strength.

Only Exide-Manchex Batteries have this construction. In addition, they feature a plastic jar that saves weight and space, high level electrolyte for less frequent filling, and huge bottom reservoir that virtually insures against sediment shorts.

Rural Distribution Wire Gives Speed Plus Economy

For fast, low cost construction specify Ansonia Lightweight Rural Distribution Wire.



Ankoseal Rural Distribution Wire Ideal for Temporary Service or Cable Relief

It comes with plastic-insulated #19 A. W. G. soft copper conductors in color-coded pairs, which are cabled around a polyethylene-insulated .109 high strength galvanized steel support wire. Each conductor pair has a controlled different length twist to avoid crosstalk.

A breaking strength of 1800 pounds makes this Ansonia Wire & Cable Company product ideal for temporary service or cable relief.

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Did you know . . . that Stromberg-Carlson warehouses and handles thousands of items in the field of construction and maintenance supplies alone? You can do *all* your business "under one roof" and find the same quality and reliability in every item.

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alert the doctor that he was wanted on the telephone. "When I want Dr. Jones on an emergency," she said, "I want to talk to him, I do not want to tickle him."

Fifth, what is the probable place of the USITA in the coming years? During its first 60 years, the national association of Independent telephone companies demonstrated a remarkable facility for accommodation. It still retains this flexible characteristic. It started out as a rallying place for Independent companies to fight back at what they considered Bell System aggression. And, after 30 years this phase passed into one of increasing cooperation with Bell System companies.

Today, both USITA and the Bell System find that their mutual problems lie, for the most part, outside of the industry, rather than inside of it. They have been forced to make common cause in a number of matters affecting legislation, regulation, taxation, and industrial developments. More recently, the USITA has found an important responsibility in the areas of public relations and industrial relations, on behalf of its Independent members. This certainly is bound to develop into a bigger and more exacting job.

The USITA has already shown what it can do to make the nation conscious of what an Independent telephone company is. The USITA's advertising campaign, statistical publicity, and other promotional activities have strengthened the position of each individual company member whether the latter realizes it or not.

This is the type of work that must go on, if the USITA is to fulfill its duty. And, because our population is growing so rapidly and the telephone business is expanding so dynamically, the job that the USITA can do (and must do) for its members in all these matters will become more challenging. But in addition, there will surely be new and as yet untapped possibilities for USITA service to its members in the years ahead. Mention has already been made of the regulatory front—namely, the FCC—where the difficult questions and decisions about new communication techniques have only begun.

It will take years and years of study. It will take years of constant and intelligent representation before the FCC, clarifying and advocating the position of the telephone industry before that position becomes crystallized, if not secure. These new communication fields are now only in the plastic stage.

And, because there is such a close line between these regulatory matters, and technical information and research, it is not beyond the realm of possibility that the USITA will have to go in for that too—in order to protect its membership in adequate fashion. This is not a prediction. But, it is a pretty good hunch. Certainly, the individual Independent company members, with a few strong and notable exceptions, are not in a position to do these things for themselves.

In short, taking a long look over the next 60 years, there is going to be plenty of work for USITA to do. It will be more demanding, more specialized, and probably more expensive. But, there will be all those additional telephones to serve and new service obligations for the member companies to assume. It is a bright future, but it is not without its clouds and its problems as we look at it from our present point of view, which is 1957.

Certainly, the USITA has its work cut out for it. It is probably a safe bet that, difficult as its problems were in the past, they will become more so in the future. To the victor, of course, belong the benefits. And, if USITA is as successful in doing its work in the years ahead, as it has been in the years behind, the Independent telephone industry's future will not only be assured, but also attended by well-deserved rewards.

USITA Suggests Placing Paystations in Post Offices

The United States Independent Telephone Association in its member letter of Sept. 20 points out that if a telephone company hasn't already installed paystations in post offices located in its exchange service area, these possible sites should be investigated as desirable sources of additional revenue.

USITA has been advised by Sol Gershon, Communications officer, U. S. Post Office Department, that the department has in effect a policy encouraging the installation of at least one paystation telephone in each post office. Each postmaster has a manual dealing with the subject and outlining proposed contract agreements.

Postal authorities do not permit semi-public service, and neither are outdoor paystations permitted.

In certain locations the Bell System is aggressively going after additional revenues from post office paystations, USITA noted.

The Robber

"That charity is bad which takes from independence its proper pride, from mendicity its salutary shame."—SOUTHEY.

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60 YEARS IN PLANT

Continued from page 50

as the COW. A mixed passenger and freight train left Clinton each weekday morning for the end of the line which it reached about noon. It returned to Clinton in the afternoon. When we had trouble on this line, I would ride in the cab of the engine and watch for trouble. When I spotted the trouble I would tap the engineer on the shoulder, he would slow the train, I would jump off, rush to clear the fault, and grab the caboose when it came along. If I couldn't make it in time they would stop and wait for me, but would blow the whistle wildly so that I would hurry to the utmost. These trips were classed as fun in those days.

The evolution of the rural line is a story of achievement that we should never forget. The old barb wire fence gave way to the one-wire grounded line. Few poles were used in those days, but a porcelain knob was nailed to the end of a 2 x 4 timber about 6 feet in length. A leather washer was placed on the rail to avoid breaking the knob. The line wire was tied to the knob and the timber was spiked to a convenient fence post.

These old grounded lines worked after a fashion, but finally the REA came along with rural power lines and put most of them out of business. This was no doubt a blessing in disguise as it forced owners of these lines in most areas to metallicize which greatly improved service.

In recent years, rural lines have been further improved by the use of high tensile strength steel wire and Copperweld which make possible the economical and popular long-span type of construction. Various types of cable, rural distribution cable, and buried wire are also extensively used on rural lines at the present time. Carrier systems, radio and microwave systems are now available for rural line use, and only the future can tell what further improvements may be in store to improve rural service.

Cleared Trouble by Instinct

Back in the beginning of Independent telephony, the magneto or local battery switchboards were crude affairs. In many exchanges, the large shutter drops would all fall at every lightning flash. Later, the common battery switchboard was a great improvement. Then came the feature switchboards with automatic ringing, flashing recall, etc. Later, the first automatic systems made their appearance which were of the three-wire type. Next, this was reduced to the conventional two-wire and

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many worth while features and improvements have been added down through the years.

Many of the old-time central office maintenance men did not know much about switchboard circuits or how they operated. They cleared trouble pretty much by instinct. They knew the weak points in the equipment and about where to look for a certain type of trouble. This has all been changed in recent years and qualified men are now required for work in our exchanges. These men can analyze trouble and locate it quickly by the use of properly designed testing instruments.

For years, the manufacturers of automatic equipment have performed a marvelous service by conducting schools in equipment maintenance. These schools are usually of eight to 11 weeks' duration. The student's time is generally about equally divided between theory and practical training.

Usually, the forenoon of each day is devoted to the study of theory and circuits and the afternoons to the assembly, adjustment and testing of equipment. Men who apply themselves in one of these schools experience no difficulty in the maintenance of automatic switching equipment in the field.

Young men in large numbers obtained valuable training in communication during the late war in the armed services. Many of these men are now gainfully employed by various Independent companies. As the result of an ever-increasing need for qualified men in our industry, it is believed that an effort should be made to acquaint young men of the various advantages to be gained by employment in the Independent field.

If they were advised as to the nature of the work and its numerous possibilities there is no doubt that many would select it as a career. This action would insure that our Independent industry will be kept virile through the influx of new and young blood.

Courses in Telephony

As further assurance that young men in our industry receive proper training, special courses in communication are being conducted in various schools and colleges through the cooperation of state associations, USITA, and others in our field. TELEPHONY has for several years encouraged this type of training and it is gratifying to note the beneficial effects of the program to date.

The evolution of the telephone is just another of the marvels of our industry. The old magneto telephone with its five-bar generator was large, cumbersome, and heavy. A large cabinet

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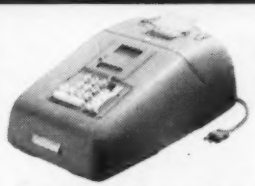

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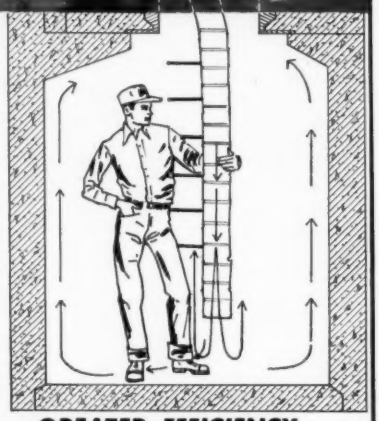

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was required to house a two or three-cell wet battery. When dry cells came into general use they required less space and the cabinet size was reduced accordingly.

The first common battery telephones, though smaller than the magneto type they replaced, were also rather cumbersome. This was due to the large components used at that time. The first desk stand type telephone was of the candlestick variety and at that time was considered "real neat." The only difficulty was to get subscribers to speak directly into the transmitter and not turn their backs on it while talking.

The first dial desk type telephone had a large cumbersome dial mounted on and forming a part of the candlestick. Even though this set did not present a very neat appearance, it was most efficient.

The first handset type telephone that came into general use was equipped with a separate bell box that also contained the induction coil and condensers. Later, these parts were all combined into our present type combination desk set. Some time later the hanging handset type telephone made its appearance and today it is proving most popular for residential use, especially in kitchens.

Since the end of World War II, many millions of dollars have been expended for new plants and factories in this country. The general rule used in the selection of sites for new plants is to locate them so that they will absorb less than 10 or 12 per cent of the locally available labor force.

In other words, the factory goes to the worker rather than forcing the worker to come to the factory. It is reported that General Electric alone now has factories in more than 100 communities.

Dispersion Helps Independents

It is only reasonable to expect that activities such as factories, large shopping centers, and branch department stores, will locate in the suburbs and beyond where they may obtain the breathing and parking space they require. Adequate parking space is most important, as without the automobile this dispersion would not be possible.

It is likewise true that without the automobile which clogs the streets of our cities, this dispersion would not be necessary. Yet few of us would care to return to the good old days when downtown street parking was available.

There is no doubt, also, that many new factories are dispersed for security reasons. This is caused by the fear of bombing of our large cities in the event this country ever again becomes

CORDS
BY
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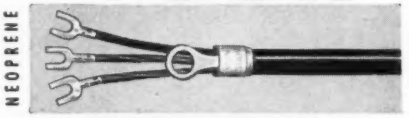
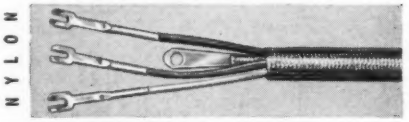
YOUR



BEST



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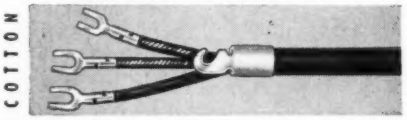

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Take your choice—Neoprene, Nylon or Cotton. They're all high quality cords made in accordance with Runzel high standard of quality. We carry a large stock of cords for every purpose.

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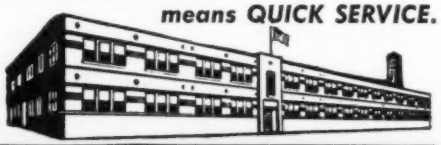

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involved in another major war. And because of this same fear of bombing, many city dwellers are willing to consider a home in the country.

As a result of this, housing developments follow the dispersal of factories as it is convenient and desirable for employes to live near their work.

Consideration must also be given to the fact that improved roads and automobiles have made country living desirable for a great number of people. Many now commute by auto, 50 miles or more, daily from their homes in the country to their place of employment in the city. When these people move from the city into the country, they generally demand a better grade of telephone service than is ordinarily available to the average rural resident.

In most cases, these newcomers will not be content with service on an overloaded party line and, in many instances, individual line service may be required. All of this adds up to good business for the Independents in many areas. Remote areas that at one time were considered undesirable telephone territory are now experiencing a boom that makes good business for the operating telephone company serving the area.

This trend toward greater dispersal of industry and homes reacts most favorably to the Independent telephone industry and its future never looked brighter.

The Independents have always been willing to take a chance and to give a fair trial to all new developments. Not only did they pioneer the dial system and the handset type telephone, but they have also made extensive use of carrier systems since the time this type of communication was made available.

There is little doubt that subscriber's carrier will be extensively used to upgrade service to many of the new housing developments now springing up in urban and suburban areas. Toll line carrier systems are also used to advantage in the expansion of present facilities to meet the ever increasing toll business.

Microwave is also proving its work in the Independent telephone industry. Several large systems are now in service and many more are in prospect. There is no doubt that these "lines in the sky" will contribute materially to the toll revenue of many Independent operating companies.

Manufacturers Praised

Concentrators are now available and may be used to good advantage to expand service as required to serve new housing developments in fringe areas. The use of this equipment makes it possible to utilize existing facilities in many cases to provide necessary service without the immediate expansion of physical plant. Concentrators may also be pole mounted to eliminate the need and expense of suitable buildings.

The industry has never had a laboratory of its own, as such. The various manufacturers have in most cases filled this need. These manufacturers have always made an all-out effort to improve and develop material and equipment to best meet the needs of the industry.

That this arrangement has proved so successful is due at least in part to the fact that direct and immediate action is always taken without the complication of red tape, with its usual delay and confusion. If an item of material or equipment has a defect that shows up in service, or if a new item is required, the operating company generally contacts the supplier or manufacturer. The necessary corrective action is taken immediately and the new item returned to the field for test. If this test indicates that the item is satisfactory, it is then scheduled for manufacture.

There is every reason to believe that this system, devoid of red tape and delay, is responsible in a very big way for the unusual success of the Independent industry.

Outstanding progress has been made in recent years to improve material, equipment and tools for use in the Independent industry. The Independent manufacturers are largely responsible for many of these improvements.

It is generally agreed that Independent telephone companies are now in a favorable position for future growth if good planning rules are observed. This future planning should give necessary consideration to plant requirements, financing, revenue, and the promotion of new business. Further automation is certain to play a most important part in our future operations.

More services are certain to be handled by dial. This will reduce the difficulty and expense of hiring and training operators.

Electronic switching systems and miniaturization of equipment will permit three or more exchanges to be installed in space now occupied by one electro-mechanical switching system. Automatic ticketing and billing is certain to come into general use and this will reduce clerical work to a minimum.

Machines of the computer type will handle assignment work, maintain plant records. Residences will all have one or more extensions and many will have more than one individual line.

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The total telephone gain in the United States in 1956, according to a statistical report recently issued by the AT&A Company, was about 3,947,-000. Approximately three-fourths of this gain was in residence telephones, one-third of which was a gain in extensions. The number of households with service increased by 1,874,000.

Continued penetration of the unsold telephone market has resulted in a steady increase in the proportion of households with telephone service. At the beginning of this year, 76 per cent of total households had telephone service as compared with 73 per cent a year earlier, and 61 per cent at the beginning of 1950. The proportion of households with service varies widely by company and among large exchange areas.

More than two-thirds of the Bell companies in the United States are above the national average of 76 per cent. Obviously, in many communities, the rural area's telephone development is substantially below that of the national average. This would indicate that many of the Independent companies have a selling job ahead of them.

It is almost certain that at some future date, burglar and fire alarm systems will be superimposed on the telephone lines. Mechanical answering devices will be more generally used.

Telephone fire reporting and emergency systems will eventually replace all of the pull-box alarm systems. A service will be available so that anyone away from home can dial his own number and perform numerous functions by remote control such as starting the furnace, turning on the lights, etc.

Dialing devices arranged so that any one from a list of predetermined numbers can be dialed by merely pressing a button, will come into general use. Time, weather and many special services will be provided by recorder-announcer equipment in practically all telephone exchanges.

Underground construction will increase gradually and it is predicted that all aerial plant will be eliminated. Wire and cable plowing methods will be further improved and used extensively.

Eventually one state will pass laws that all new construction for all utilities must be placed underground; then other states will follow suit. It would be an excellent plan even now for all operating companies to keep an accurate record of the cost of their underground plant. These data would prove extremely useful, if at some future time underground construction is made compulsory, to justify increases in rates.

Some new housing developments at the present time have all underground cable distribution systems installed on a trial basis. Undoubtedly, this type of construction will prove both serviceable and economical and eventually come into general use.

Both outward and inward dialing from large PBX systems are now a reality. We predict that this service will prove extremely popular and come into general use in the near future. There is actually no good reason why calls into a PBX should not be completed by direct dial in the same manner as a call to an individual line on a main exchange.

While it is true that the Independents started at the grassroots, they have fought their way up the ladder to a most favorable position in the industry. We believe that our ambitious and well-trained men and women will not only maintain but improve this position in the years to come.

The Real Progressive

"We realize there can be no progress without change. But we have also learned from experience that there can often be change without progress—disastrous, crippling change, for the sake of change alone. The real 'progressive' is the man who knows unfailingly which kind of a change is which. He will never permit our freedoms to be swept aside in the search for a short cut to Utopia; nor does he regard the Constitution as a dam which holds back the tide of our national progress. Rather, he sees in it the stout retaining walls which channel the flow of that tide always in the direction of human liberty."—BENJAMIN F. FAIRLESS, *former chairman of the board, United States Steel Corp.*

Repression of Opinion

"An editor of a Pennsylvania newspaper complains that people have become so fearful, he finds it difficult to get an interview from them. He sampled around 2,000 individuals for expressions of opinion, and found but a few who were willing to talk. There was no trouble to get them to talk about the weather, about the amenities of life, but when it came to giving opinion about national or international affairs, he found the great bulk loathe to say a word. . . . The newspaperman thinks that something is radically wrong when people in a great democracy are too fearful to express an opinion."—EDITORIAL STATEMENT, *Bay Springs (Miss.) News.*

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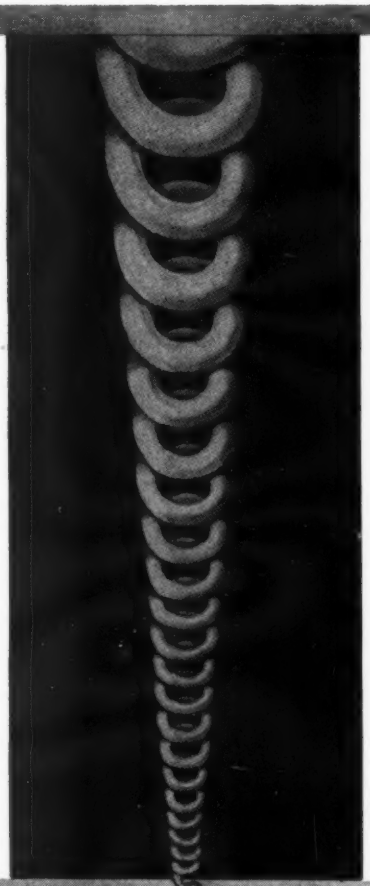
BY GENERAL INSULATED WIRE WORKS, INC.*



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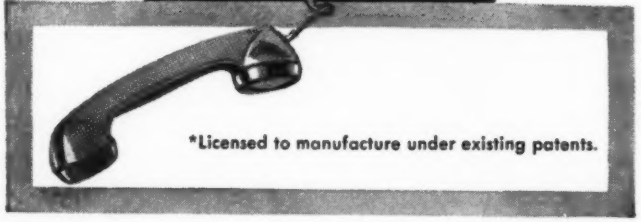

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AERIAL AND DUCT

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TYPE 190

AERIAL AND DUCT

Type 190 offers the excellent characteristics of polyethylene in the insulation and the jacket. The conductor assembly is aluminum shielded. Manufactured in sizes #24, #22 and #19 AWG. Range 6 to 404 pairs.

TYPES 130 & 132 160 & 162

SELF-SUPPORTING CABLE

These cables designed for aerial span installations without messenger wire support. Types 130 & 160 copper weld conductors — long spans, Types 132 & 162 hard drawn copper conductors — shorter spans. Types 130 & 132 Polyethylene sheathed, Types 160 & 162 Polyvinyl sheathed.

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BURIED TELEPHONE WIRE

An armored Telephone Wire designed for direct burial by cable plow. Two conductors #17 solid of relief-annealed copper are parallel insulated with polyethylene. A .005" bronze armor tape is run longitudinally under a polyvinyl oil and acid resistant jacket.
Also available in unarmored style TYPE 163.

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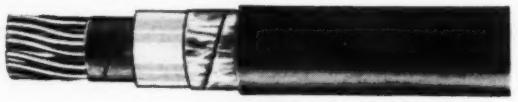
PWC Inside Telephone Cables are vinyl insulated and jacketed. They feature fully color coded pairs and a Nylon Rip cord for easy stripping. Made in sizes #24, #22 & #19, range 2 to 101 Pairs. Brown or Ivory.

TYPE 166



BURIED

An excellent design for direct burial. Polyethylene insulated, semi-color coded pairs. Pair assembly covered with extruded polyethylene belt, copper shield and vinyl jacket. Range 6 to 404 pairs.

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RURAL DISTRIBUTION

PWC Rural Distribution Wire is made in constructions from 1 to 16 pairs. Each conductor is insulated with polyethylene and jacketed with colored vinyl. Pairs are assembled around a 109-E steel messenger wire.

NO. 214 - RURALINE - NO. 212

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The new polyethylene insulated line wire designed for low cost rural service extensions. Two Copperweld conductors are insulated in parallel. Size #14 is identified as No.-214, size #12 as No.-212.

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There are many additional products manufactured by PWC for the Telephone Industry. In addition to the complete line of thermoplastic inside telephone wires, Urban and Long-Span distribution wires, many custom cables are manufactured to customer specifications. For additional information or for special cable engineering contact your nearest PWC distributor or write direct to the Plastic Wire & Cable Corporation.

PLASTIC WIRE & CABLE CORPORATION

JEWETT CITY, CONN.

60 YEARS IN TRAFFIC

Continued from page 56

ground that maintaining telephone service on Sunday, in the event of accidents, illness or other disasters, was really an act of mercy.

In the early days of telephony, generally the operators mode of dress was a matter of choice, but a few managers insisted on uniforms, black skirts and white shirtwaists in warm weather, replaced by black shirtwaists in winter. Later, in some offices, black dresses with white collars and cuffs and white aprons were worn. In the days of high-buttoned black shoes, one operator was reprimanded for appearing for work in a modish new pair of tan slippers. Bracelets and other jewelry which might interfere with operating were frequently forbidden. Some managers objected to operators wearing ribbons in their hair.

In the early days there were no telephone company buildings; a switchboard and an operator were tucked away in the corner of an office, the back room of a general store, an attic, loft, or railroad station—and there was the telephone exchange. In one Illinois town, the switchboard was installed in a room extending over the sidewalk, with windows on all sides so the operator could look down the street and locate townfolk for whom she might have a call.

Restrooms Behind Switchboards

A manager's desk equipped with listening-in apparatus, and a couple of chairs for visitors, sometimes accompanied the switchboard at a discreet distance. A public telephone was often there, too. We had one in the office where I worked in 1907-08 and the operator's favorite customer was "98 Waverly" this being the number the customer called every time he came to the central office. "98 Waverly" was our favorite customer because he always brought us candy or fruit. Years later, I learned "98 Waverly" was a state employe. I also learned his name.

Operators usually hung their wraps and washed their hands somewhere behind the switchboard. I recall one operator who worked the night shift bringing a bottle of hot water so she could take a sponge bath in the washbasin the following morning as she was going on a trip when she was off duty and did not have time to go home before leaving.

Lunch, brought from home was eaten "over by the window." I recall one day when we had a severe snowstorm and operators had to work "straight through their lunch time," when we were able to leave the switchboard, the manager provided a big kettle of oyster stew. I didn't like oysters, so I unwrapped my lunch from the newspaper in which it had been wrapped, a common "lunch pail" in those days, and after eating my sandwich, lifted out an individual pie my mother had baked. I was seated next to the manager and, when he saw what I had in my hand, he said, "How dare you have pie" and much to my chagrin, reached over, took the pie and ate it.

Years later, when we were both working for Illinois Bell, he in Decatur, Ill., and I in Springfield, Ill., I was informed my former manager, Fred Kelley, was coming to Springfield as district commercial manager. I smiled, but made no comment, but anxiously awaited his arrival as I had not seen him since he was manager in the Interstate Telephone & Telegraph office in 1907 when he swiped my pie. When he was transferred to Springfield, I was toll chief operator in the Bell office.

One day they brought Mr. Kelley into the toll room and introduced him to me. I smiled and said, "I know Mr. Kelley, in fact we are old friends." He looked puzzled and said, "I'm sorry, but I don't remember you."

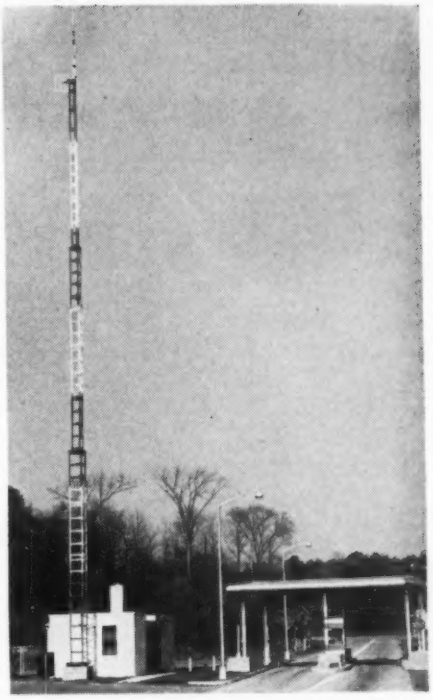
That was not surprising as I had changed considerably in the 16 years when he had last seen me. I was no longer shy and there was considerably more of me.

I related the pie episode and Mr. Kelley laughed so loudly I was tempted to shoo him out of the toll room as I always prided myself on having a quiet one, and I thought, "You will learn to keep your big mouth shut one of these days!"

Afraid During Storms

Keeping the operating room clean was the opertor's job in the early days of telephony, and for a number of years thereafter in the small exchanges. In some instances, they also had to devote some time occasionally to keeping mice, pigeons, bats and water bugs, from interfering with the working of the switchboard. During thunderstorms switchboards would be alive with sparks and, on such occasions, some operators would go out in the hall and sing, probably to keep up their courage.

It was not uncommon to see a rocking chair in an office where operators would sit and do fancy work or read during dull periods. The term "fancy work" needs clarification since this term is probably foreign to the modern



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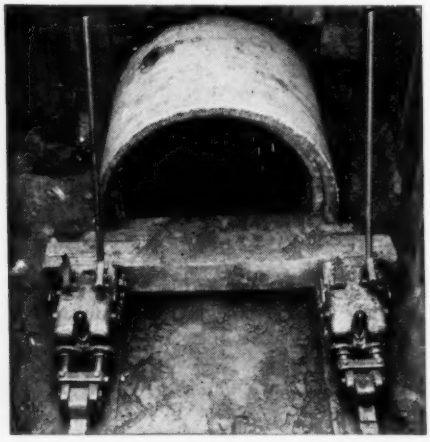

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switchboard operator. It means embroidering doilies, crocheting, knitting, and other handwork performed by young ladies as diversion, there being no radio or TV.

Operators wages varied in the early days of telephony and generally were higher in the larger offices in the North, lower in small communities in the South. Girl operators earned anywhere from $6.00 to $40 a month. The writer was probably in the middle bracket, earning $16.00 a month for nine hours work per day, seven days a week, with one Sunday a month off. This was four dollars more a month than I was paid for working in a drygoods store in the same era. I lived one and a half miles from the office and, having a split trick, walked this distance four times a day. One could not afford to pay 5 cents to ride a street car in those days, or so I thought, as I was one of the young ladies who went to work to supplement her father's income and to have a few things for myself which could not have been procured otherwise. In the afternoon when I was off duty, I pressed my brown pleated skirt, the only one I had, put on a fresh shirtwaist and, if they needed it, polished my high topped brown shoes.

We handled "Sequence Calls" in the early days, too, although they were not referred to as such. If a subscriber called a list of numbers several times, we soon remembered the numbers and when he placed his first call we would ask, "Would you like the other numbers, too?" The subscriber usually said "Yes," and we proceeded to ring the numbers in their proper order.

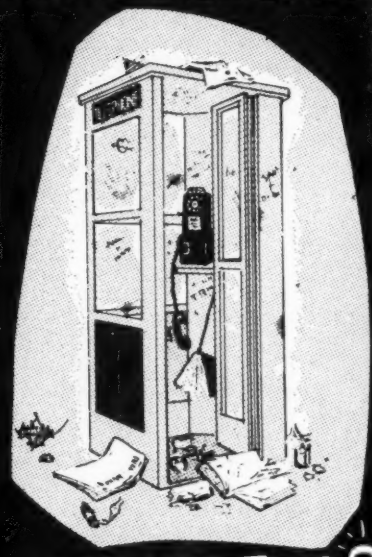
First Baby Sitters

Some of the other services rendered in the early days were: Giving location of fires, news of accidents, sporting events and elections; giving morning calls at the time the subscriber requested, listening for the cry of the baby left sleeping by the telephone while its mother ran over to a neighbors—classifying telephone operators as the first "remote control" baby sitters.

As technical improvements were made in the telephone, and it became more convenient to use, its popularity increased greatly. People began to feel that a telephone was the thing to have. The average number of calls per day soared. New buildings began to appear —two or three stories high. Automatic timing devices, called Calculagraphs, for timing long distance calls, began to replace the wall clocks and the Waltham watches. Information desks were established.

Operators no longer had to make

SHOULD YOUR BOOTHS



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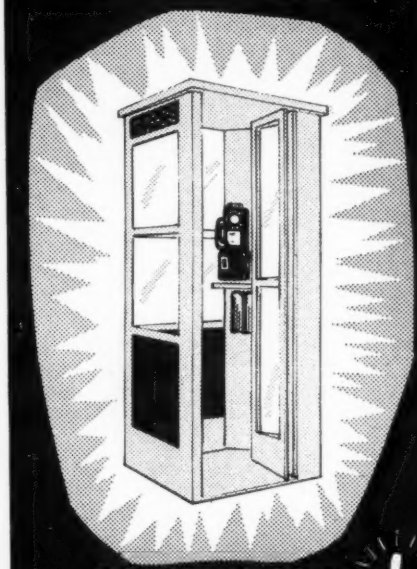

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test calls every morning to every subscriber to say, "Good morning. This is the daily test. How do you hear me this morning?" There was little opportunity now for pleasantries between operator and subscriber and certainly no time to do "fancy work" and the rocking chair era became a thing of the past. Relations between subscribers and the operator became more formal.

"Operating rules" were issued and my former chief operator, Anne Barnes, then Traveling Chief Operator for the Iowa Independent Telephone Association, compiled a book of operating rules and regulations for local and long distance operators. The book was published by the Western Telephone Journal Co. of Vinton, Ia. The price of the operating practice was 50 cents. The cost of the book did not compare with its value, although 50 cents was "50 cents" in those days and not the grossly deflated half dollar of today.

The "general instructions" in the operating practice written by Miss Barnes are as applicable today as when they were written. Naturally, operating methods are vastly changed. Writing an operating practice is a thrilling experience, one the writer also experienced when she was traffic supervisor for the Illinois Telephone Association, particularly in those days when instructions were so sorely needed in the smaller exchanges.

Do you know how peg counts were taken in the early days? According to Miss Barnes, each operator's position was provided with two small boxes; one was filled with kernels of yellow corn, and the other was empty. Starting at the beginning of an hour, whenever an operator answered a call, she took a kernel out of the full box and dropped it into the other box. At the end of each hour the kernels were counted and the totals per operator were entered on a tally sheet.

This method created a great deal of competition between operators and bad feeling as well. The less ambitious operators, in order not to make a poor showing, slipped in extra kernels whenever they could.

My earliest recollection of keeping a peg count was to have a wooden peg which was inserted in a vacant bank of jacks in a common battery switchboard each time a call was answered. The writer has always been under the impression the use of the wooden peg was responsible for the term "peg count."

In 1902, the first operators' training school was established in New York and was soon followed by others in large cities, where various training courses were given and practice switch-

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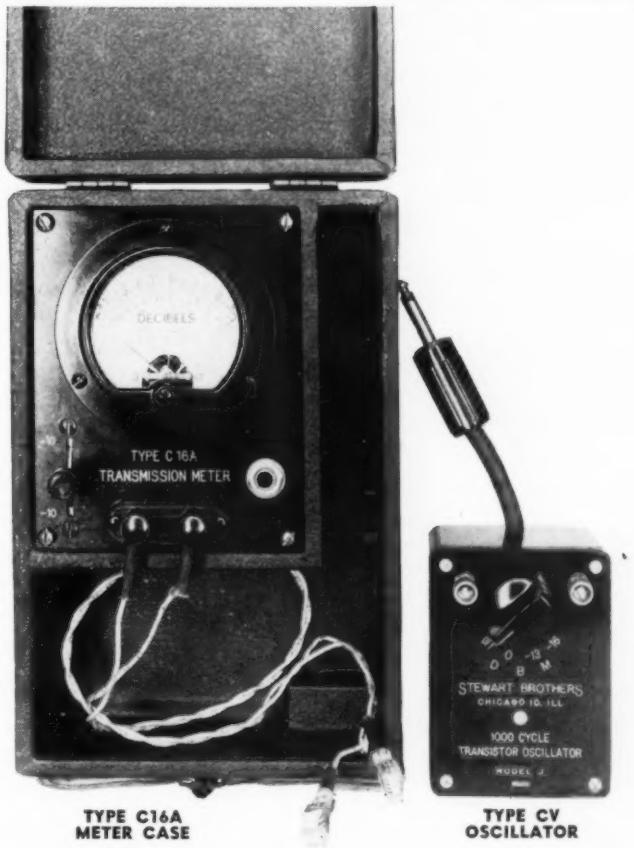
End Customer Complaints of Poor Transmission



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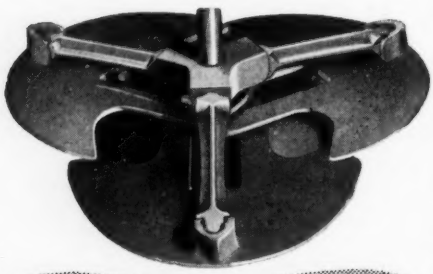

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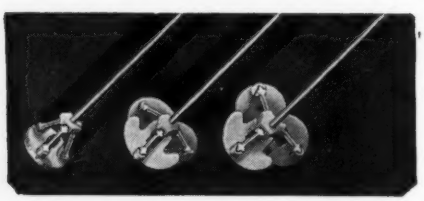

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boards were used, so that girls might gain some confidence and facility in operation, before they began to handle calls on central office switchboards.

This method of training was used for a number of years until the practice of training operators at the switchboard was adopted. Not in the old-fashioned way of having operators listen in with an experienced operator, but by handling simulated calls. The present method enables the student to become familiar with the central office atmosphere and to progress in her training more rapidly to a point where she is able to handle commercial calls.

In the early 1900's, there were competitive exchanges in many communities, such as we had in my home—the Independent company known as the Interstate Telephone & Telegraph Co., and the Central Union Telephone Co., later known as the Illinois Bell Telephone Co. The competition for business was keen and the feeling of rivalry extended right down the line, also reaching into the traffic department.

Girls who worked in the Independent exchange thought any girl who worked for Central Union was not decent and, as I learned later, girls in the Central Union office thought girls in the Independent exchange were a bunch of nitwits, working for a one-horse outfit.

My closest friend migrated to the Central Union office, which almost broke up our friendship. She finally succeeded in convincing me, the Central Union was a much larger office, the girls were just as nice as the girls who worked for the Independent company, and there was more opportunity for advancement. Being young and ambitious, her last argument convinced me.

I shall never forget the sad and disappointed look on my chief operator's face when I told her I was quitting to go to work for Central Union. From her expression I concluded she would not feel worse if I had told her I was going to the "bad place," as it was called in those days.

Work In Harmony Today

My friend's prediction proved to be true. By working hard I was able to achieve all of my ambitions. It is most gratifying to have worked through the years and to have seen all bitterness and rivalry between the two segments of the telephone industry eradicated. Today, operators and management work in close harmony, with the same objective in view—to give the best possible service at the lowest possible cost.

The 50 years I have spent in the telephone industry have taught me

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with Easy-to-Use
KEARNEY Airseal

Corrosion and oxidation are no longer maintenance problems when your ground rod connections are sealed with KEARNEY Airseal. This weather-proof compound forms an air-tight coating over any shape connection with a simple squeeze of the hand. Airseal will not deteriorate . . . even when used on ground rod connections below ground. It remains pliable indefinitely . . . at temperatures from –50°F up to 250°F.

For time-saving use KEARNEY Airseal — available in convenient sized pads, or in 10-foot rolls.

For Better Construction . . . For Safer Maintenance
Specify
263

KEARNEY PRODUCTS
4224-42 Clayton Ave. • St. Louis 10, Mo.
Canadian Plant: Guelph, Ontario

many things—tolerance, understanding, loyalty, and most of all, the value of true friendship. Just a few days ago a former operator came to visit me in my home. It has been 35 years since we worked together in the Bell office in Springfield. Although she is a grandmother and a happy housewife, she still has many fond recollections of the years we worked together in the central office.

I am especially proud of my membership in both the Bell and Independent Pioneer organizations which were earned by my service in both organizations. The ideals of these associations are a wonderful tribute to the men and women who have given the best years of their lives to rendering service in the telephone industry.

As time went on and the telephone business expanded, more thought was devoted to the health and comfort of switchboard operators. Rest periods were adopted, hours were shortened, rest rooms were provided, paid vacations and other benefits were adopted by Independent telephone companies throughout the nation, such as differential remuneration for less favorable hours, time and a half for overtime and double time for holidays, insurance benefits and pensions for retired workers.

Some of the most attractive, comfortable and well appointed central offices and rest rooms are found in Independent telephone company exchanges throughout the nation, a far cry from the cubbyhole in some store or railroad station, where pioneer operators worked in years gone by.

The work of a switchboard operator is becoming more technical year by year, requiring greater intelligence and educational background. Automation has invaded the central office as operators push buttons to render telephone service to all parts of the world. Calls are completed with less effort and greater skill.

Since the innovation of CLR (customer held service) the speed on long distance calls, plus the ability of the customer to hear the advancement of his call, has made long distance service more appealing to the customer. DDD (Direct Distance Dialing) is expanding rapidly and is being received favorably by customers.

No longer does a salesman take off his coat and make himself comfortable while he reads a daily paper or magazine after reporting ready to talk on a long distance call; he remains on the line while the operator advances the report, knowing he will be in communication with the person who called him in just a few moments, if the

Telephone batteries engineered for—

extra-dependable power . . . plus!

C & D PlastiCell®

Extra-dependable packaged power! Extra advantages, too!

The best "salesmen" for C & D PlastiCell® batteries, you'll find, are the large number of friends these *advanced-engineered* batteries have made among telephone men in important exchanges across the country. C & D PlastiCell telephone batteries give you much more than extremely reliable power. You also get:

- **One-piece, permanently-sealed plastic case.** Entire unit is shock-resistant . . . lighter and more compact than glass or rubber.
- **More compact installations.** With smaller dimensions for a given capacity, C & D's take up less battery room space.
- **Easier maintenance.** Patented Post Seal eliminates acid creepage.
- **Lower costs.** Light plastic case reduces shipping costs . . . total in-place costs.

These plus many other benefits mean that in the telephone field, C & D is—

Your better battery buy!

Literature available

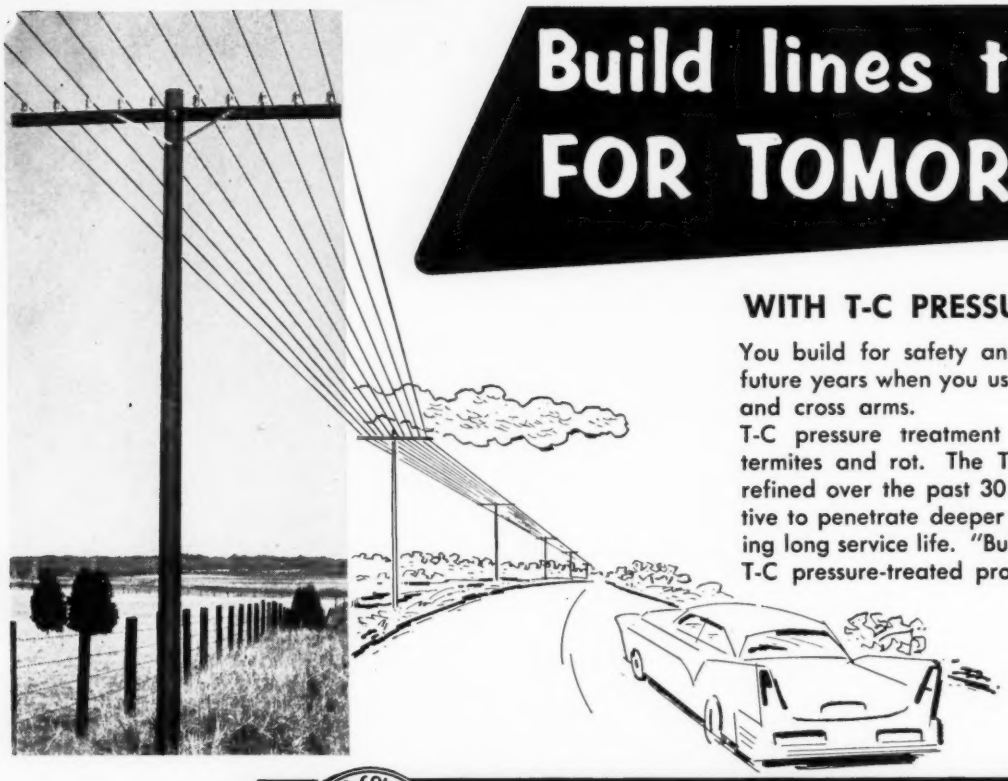
Write for complete description and specification in C & D PlastiCell Bulletin T-527

C&D **BATTERIES, INC.**

of Conshohocken, Pa.

SINCE 1906

SALES AND SERVICE OFFICES IN PRINCIPAL CITIES FROM COAST TO COAST



Build lines today... FOR TOMORROW

WITH T-C PRESSURE-TREATED POLES

You build for safety and minimum maintenance in future years when you use T-C pressure-treated poles and cross arms.

T-C pressure treatment is sure protection against termites and rot. The T-C process, developed and refined over the past 30 years permits the preservative to penetrate deeper and more uniform — assuring long service life. "Build for Tomorrow . . . specify T-C pressure-treated protection.

Distributed by
AUTOMATIC ELECTRIC SALES CORP.
AND LEICH SALES CORP.

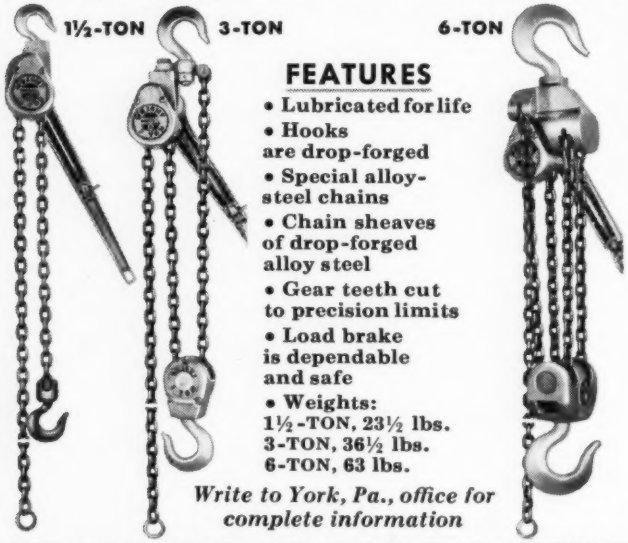
TAYLOR-COLQUITT TIMBER CONSERVATION T-C

TAYLOR - COLQUITT CO.
SPARTANBURG, SOUTH CAROLINA

PLANTS AT SPARTANBURG, SOUTH CAROLINA AND WILMINGTON, NORTH CAROLINA

NEW WRIGHT Type "C" Pull-A-Ways

THREE SIZES—1½, 3 and 6-Tons



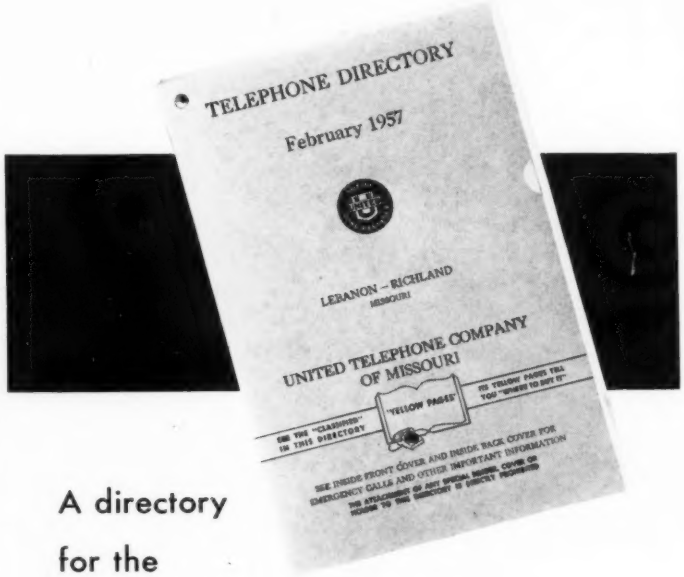
FEATURES

- Lubricated for life
- Hooks are drop-forged
- Special alloy-steel chains
- Chain sheaves of drop-forged alloy steel
- Gear teeth cut to precision limits
- Load brake is dependable and safe
- Weights: 1½-TON, 23½ lbs. 3-TON, 36½ lbs. 6-TON, 63 lbs.

Write to York, Pa., office for complete information

Wright Hoist Division
AMERICAN CHAIN & CABLE
ACCO

York, Pa., Atlanta, Chicago, Denver, Detroit, Los Angeles, New York, Philadelphia, Pittsburgh, San Francisco, Bridgeport, Conn.



A directory
for the
United Telephone Co. of Missouri

printed by

R. R. DONNELLEY & SONS COMPANY

350 East Twenty-second Street, Chicago 16

person calling him is available. Remember the green "WH Report Tickets?" They had their day but have gone in the discard as new and better operating practices were devised.

Headsets Made Sores

The drop transmitter and heavy steel banded headset have given way to the modern operator's set, light in weight and comfortable. How well I remember the old headset I wore back in 1907! The pressure on my ear made it sore, then a scab formed and to this day there is a bump on my ear where the receiver rested. I finally got smart and stuffed a couple of handkerchiefs under the steel band to relieve pressure and placed a handkerchief on my ear as the operators did. We always wore the receiver on the same ear as we didn't know we could change from one ear to another. We learned that some years later after the "corns" had formed on our ears.

Because of the daily routine of her job, an operator is rarely aware of the dramatic side of the service she renders. There are many unsung heroines in the telephone industry. Occasionally, we hear or read of an operator who has saved a life or rendered invaluable service in time of emergency, but there are thousands of operators who have performed such services who are never known.

Some of the calls operators handle today were never dreamed of 60 years ago, such as Conference Calls, Overseas Calls, Mobile Service Calls, Special Reversed Charge Toll Calls, Community Dial Office Calls, Ship Calls, Calls for Transients, TWX Calls, Credit Card Calls, Air Defense Warning Calls, and many others.

In the past 60 years, outstanding progress has been made in Independent telephony — management, operating methods, working conditions, training, equipment, service to customers. Thousands of people in the telephone industry, manufacturing and supply companies, scientists and engineers, all have contributed to the achievements which have made it possible to render service to the nation in accordance with their communications needs.

Who can say what the future will bring in the way of change and progress in the traffic department? The writer would hesitate to make a prediction but of this she is convinced—as long as operators handle telephone calls we shall have the "Spirit of Service" tradition in the telephone industry as a whole. The willingness to go a step farther than the call of duty in rendering telephone service to the nation. Progress in the field of telephony has kept pace with progress through the years and no doubt it shall continue to do so in the future.

In this article, commemorating 60 years' service in the traffic department, the writer has stressed the human side of our business for that is what our business is comprised of, individuals and personalities, who have used the facilities, humble and modern, through the past 60 years to carry the human voice far and near, until today they can establish a connection that will carry the human voice around the world.

To all who have worked in the traffic department during the past 60 years, our congratulations and best wishes for the wonderful service you have rendered through the years, whether you worked at a one-position switchboard or in an office in a metropolitan area. The "Spirit of Service" is the same the world over.

"It is delightful to transport oneself into the spirit of the past, to see how a wise man has thought before us, and to what a glorious height we have at last reached."—Goethe.

THE COMMERCIAL STORY

Continued from page 62

determined to some extent at least by the size of the company. Larger companies usually spend more money per station than the smaller ones. We believe that a minimum budget for any company should be 25 cents per station per year. Fifty cents per year per station certainly is not excessive for any company if an effective advertising job is to be done.

The advantages of a modern business office were mentioned during our discussion of sales opportunities. We are convinced that a well arranged, well lighted and attractive office is a distinct asset to efficiency, public relations and merchandising.

Everything possible should be done to make offices convenient for the customer. His first physical contact, the office doors, should be light in weight, easy to open and inviting. Many are made of cast aluminum with large glass areas. Inside, the customer should find convenient tables or stands for check writing. These should provide large daily dates, blank checks, clean blotters and pens that write easily without soiling the fingers or glove. Plastic holders should provide spaces for handout literature.

In larger offices, counters may be built low in the "order taking" space so customers may be seated while they are telling their wants. Spaces behind the counter should contain all forms and materials the service representative may need, and telephones should be within handy reach for calls to other departments about orders or accounts.

Color telephones should be on display and posters and counter cards in suitable frames may be used to tell an advertising story. Window displays are effective where such facilities are available.

Pastels in the color selections and woodwork in light or natural finish add a pleasing touch. A slight curve in customers' counters provides a modern appearance but has serious disadvantages of construction and cost. Drawers in counters and desks may be built to be interchangeable for increased efficiency. These may contain card records of customers' equipment, collection records and other files that can be used either for work at the desk or as reference while waiting on a customer at the counter.

Drive-in payment windows meet with an immediate and enthusiastic response from customers and employes alike. We are told that such windows receive up to 65 per cent of collections paid at the office.

The modern business office should provide ample public telephone facilities in conveniently located, well-lighted and well-ventilated booths. Incidentally, this is an ideal location for a color paystation telephone.

In addition to paystation booths, "customers' rooms" may be provided at major exchanges so that business men may have facilities of a table and writing paper. Calls are usually made over telephones without coin attachment.

A look ahead indicates that commercial people will become more and more involved in planning and public relations or public education aspects of Direct Distance Dialing (DDD) installations. Perhaps a brief review of what others have done commercially would be of value to some who might be faced with similar problems.

A commercial committee may be formed to act in coordination with committee representatives from other departments. This committee is generally concerned with getting proper instruction to the public on how to use the new service and in the issuing of service orders and the publication of the new directory.

Brochures of instructions for the use of DDD are very helpful. They may contain examples of use, a list of dialable exchanges with codes, a map of the dialing area, long distance

IMPROVE

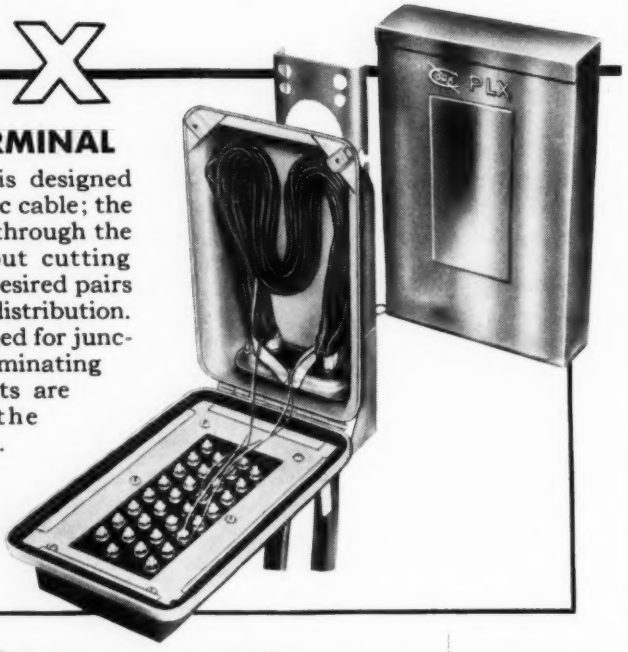
YOUR OUTSIDE PLANT CONSTRUCTION

WITH BUCKEYE SERVICE

PLX

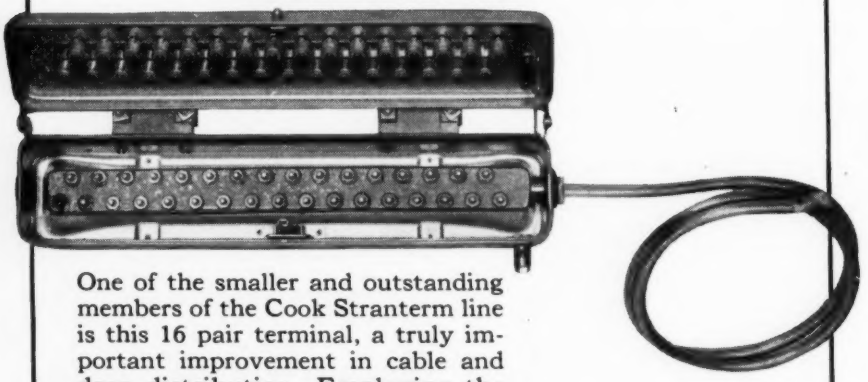
CABLE TERMINAL

This terminal is designed for use on plastic cable; the cable is looped through the terminal without cutting wires, and the desired pairs terminated for distribution. It can also be used for junctioning and terminating cable. Grommets are used to seal the cable entrance. When ordering, specify cable sizes. Catalog No. 452-1116



Stranterm

CABLE TERMINAL



One of the smaller and outstanding members of the Cook Stranterm line is this 16 pair terminal, a truly important improvement in cable and drop distribution. Employing the same excellent design features as the 26 pair Stranterm, this smaller unit is a great asset for improving old and developing new outside plant systems.

Catalog No. 352-1241
(lead cable stub)

BUCKEYE TELEPHONE & SUPPLY CO.

1250 KINNEAR RD. **COLUMBUS 21, OHIO**

rates to dialable exchanges, and a page or two for listing names, addresses and numbers of people frequently called.

Personal or telephone contacts may be made with every subscriber in the exchange shortly after the brochures are mailed to them. Premise calls are usually required for larger users. Others may be contacted by telephone for detailed explanations of the use of the new service. In some cases, these calls can be followed up with premise visits. Traffic and commercial people often work together in making these interviews.

A running record of the progress of the installation should be presented to the public in news releases in the local paper and radio station. Advertisements should be run on various phases of the operation, both before and after the conversion.

Don't overlook the fine opportunity to sell color telephones, extensions and other items during the period when subsets are being changed and during interviews.

In preparing the directory, a translation list of old telephone numbers into the new 2-5 numbers is usually made. This may be issued to all departments in the form of a "blanket work order." Directory records are changed from this list and work orders, issued subsequently to the blanket order, may carry both the old and new telephone numbers until the date of the conversion.

The changeover to a new 2-5 numbering system usually creates some confusion in dialing in spite of individual interviews with subscribers or publicity prior to the conversion. The combination of letters and numbers is a problem for subscribers unfamiliar with it. Experience has shown that people are apt to dial the letter "O" for the numeral "zero" and the letter "I" for the numeral "one."

In order to provide explanation to customers after the conversion, it may be helpful to set up special trunk lines to telephones connected with the toll switchboard. People who conducted the pre-conversion interviews may be assigned to answer questions or, in some cases, to send a representative for a premise visit. This plan is usually continued for about two weeks after the conversion, or longer if necessary.

Certainly, as our industry grows our commercial problems will not diminish. Rather, they will grow right along with the business. Maintaining a force of competent, trained people will be a matter demanding serious thought and planning. The people who join the

(Please turn to page 123)

NOW YOU CAN *"Buzz Thru"* WET CABLE SECTIONS AND TEST FROM FIELD OR OFFICE ENDS WITH A...

MURPHY BUZZER RELAY SET (BR-1)

To increase the usefulness of the famous Murphy Cable Tester, the new Buzzer Relay Set gives you a dependable, economical way of "buzzing thru" wet cable sections over a greater resistance without having to add too many batteries.

The BR-1 will buzz thru a loop resistance of 0 to 1000 ohms. Only one 4½ volt battery is used in the set and it is enclosed in a cabinet with a special "balanced armature" relay. Dimensions of the Murphy Buzzer Relay Set are 3½x6x3 inches. It is shipped complete with a pair of water proof cords for connecting to the Murphy Cable Tester, and a heavy duty 4½ volt battery.

Write for prices and additional information.

Order your new Model VC Test Cords for use with Murphy Cable Tester. Made of high quality, extremely flexible, test wire, they're insulation tested at 20,000 volts . . . assure no "leakage" readings.

ELECTRONIC RESEARCH DEVELOPMENT MANUFACTURE

MURPHY ENGINEERING LABORATORIES, Inc.

4419 Tulsa • Houston 24, Texas

HEAR every word on the TELEPHONE with a BURGESS-MANNING "Hear-Here" Booth

Now you can hear every word clearly over the phone—even right next to a noisy machine. Burgess-Manning "HEAR-HERE" Booths are acoustically designed to provide an "isle of quiet" in the noisiest place. Ideal for manufacturing areas, hotels, stores, depots, shipping rooms, etc.—a model especially suited to each location.

Different in many ways:

- No Noise—always quiet
- No Doors—always fresh air
- No Corners—to collect dirt
- No Glass—to break

Write for Catalog - Bulletin

PERFORMANCE GUARANTEED

Architectural Products Division of

BURGESS-MANNING COMPANY

5956 Northwest Highway, Chicago 31

Manufacturers of 3-Way Functional Ceilings and Acousti-Booths for Telephoning

PAGE LASHING WIRE OF Stainless Steel

You get a neat and long-lasting job every time you use PAGE Stainless Steel Lashing Wire! Ideal for lashing conductor cables (lead or neoprene covered) to a strand messenger by Neale or Western Electric Machine. Coils tailored to fit machine specified.

3 GRADES • EACH IN 2 SIZES (.065 and .045)

Type 430 • for use with galvanized messengers
Type 302 • for use with stainless messengers
Type 316 • for use under severe corrosion conditions

Furnished six coils in cardboard carton (minimum order).

Other fine-quality products • You can depend upon PAGE Strand (Stainless or Galvanized Steel) and PAGE Stainless Dead-End Wire • See your Telephone Supply Distributor, or write our Monessen, Pa., office.

Page Steel and Wire Division
AMERICAN CHAIN & CABLE

Monessen, Pa., Atlanta, Chicago, Denver, Detroit, Houston, Los Angeles, New York, Philadelphia, Portland, Ore., San Francisco, Bridgeport, Conn.

ACCO

TRADE MARK

XUM

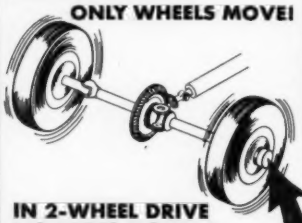
NEW... exclusive
AXLE POSITIONER HUB for 4-Wheel DRIVE SERVICE TRUCKS

FREE-LOCK the dependable name for free-wheeling hubs, brings you the exclusive "axle positioner" feature. Engages your hubs instantly regardless of position of the vehicle. No rocking or moving of vehicle under any condition.

FRONT DRIVE WITH FREE-LOCK HUBS

LOW OPERATING COSTS

ALL PARTS STOP
ONLY WHEELS MOVE!

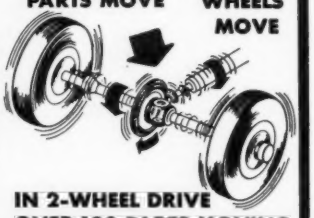


IN 2-WHEEL DRIVE
NO PARTS MOVING

FRONT DRIVE — NO FREE-LOCK HUBS

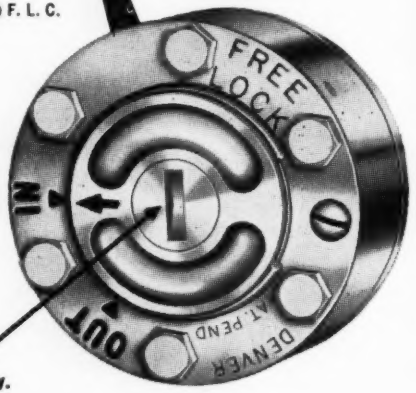
HIGH OPERATING COSTS

ALL THESE PARTS MOVE
WHEELS MOVE



IN 2-WHEEL DRIVE
OVER 100 PARTS MOVING
—WEARING!

© F. L. C.



If necessary, a 1/16th inch turn engages hub instantly.

Unconditionally Guaranteed for One Year!

Available for these models

Chevrolet	International
Dodge	
Ford	Land Rover
G.M.C.	Willys

Cut maintenance costs! Get 2-wheel drive economy, still having instant use of 4-wheel drive when needed.

See your dealer or write for *FREE* literature.

FREE-LOCK CORPORATION
6301 N. FEDERAL BLVD. • DENVER 21, COLORADO

Protection for PRESSURIZED CABLE SYSTEMS

TELEPHONE CABLE PRESSURE-GUARD

The need for an automatic device to stand guard at intervals along pressurized cables has long been recognized. Now United Electric Controls has the answer . . . The Telephone Cable PRESSURE-GUARD.

Developed by U.E., in collaboration with the Bell System, the PRESSURE-GUARD is now available to all Telephone Companies as an aid in reducing cable maintenance costs.

In the past the location of a cable leak was a matter of man hours in climbing poles and manually checking pressure points. When the pressure guard detects a pressure drop it introduces an electrical resistance . . . which indicates at a central monitoring source a cable leak and the location.

Specifications Pressure-Guard

Field Adjustment Range	0 to 15 PSI
Factory Setting	2 ±¼ PSI on falling pressure
Pressure Response	4 ±½ oz.
Proof Pressure	30 PSI
Electric Rating	0.01 amp 110V DC
Load Resistor	Carbon composition 330,000 OHM 1 watt
Take-Off Tube	Tinned Copper 6′ x ¼″ x 0.035
Drop Wire	6′ Type SJ0 #18 stranded 0.2 conductor
Size	6″ x 4½″ x 2½″
Approximate Weight	1¾ lbs.

These specifications may be modified in a great variety of ways to meet the requirements of any given application.

See us at the U. S. Independent Telephone Association Annual Convention, Room 616, Hilton Hotel, Chicago, October 14-16.

UEI®
United Electric Controls COMPANY
85 SCHOOL STREET, WATERTOWN, MASS.

business today will become the managers and executives of tomorrow. For this reason they should be selected with the utmost care. And on these people rests in large measure our success or failure in maintaining the kind of public relations we want.

Employe training receives a great amount of attention in forward-thinking companies. A written program should be developed and a check list of major points should be furnished each manager or supervisor responsible for such work as a guide in instruction. New employes should learn about the background of the company's organization and history as well as the routines that are followed in the department. Merchandising and the importance of courtesy, tact and the "overtones of service" should be stressed.

Certainly we must keep abreast or ahead of the times in our commercial activities and thinking. In a large measure we are the company in the eyes of our customers. They come to us when they want to establish or change service, to pay their bills or to make inquiries of many kinds. It is up to us to see that they receive the kind of service they want when they want it and that it is pleasing to them in every way.

Education for Capitalism

"We cannot blame our teachers for failing to give our young people the true American concept when we don't do our share. It is easy even for some of us, to forget profits are not used exclusively for big dividends to fat stockholders. It takes profits and the taxes levied on profits to found and support our schools and other vital public institutions. The first call on profits in any well-managed business is to secure the future of that business—provide the research needed, to stay competitive and ahead of the times, to provide better plant facilities, bigger warehouses, better machinery—so that the individual worker may produce more and hence earn more."—JOSEPH P. SPANG JR., *president, The Gillette Co.*

Room In Which to Grow

"If we try to get people to become something we would like them to be, then we are limiting their possibilities right from the start. I think firms have to give managers and potential managers room to grow in, in much the same way that we give a scientist room to discover whatever it is possible for him to find."—CLEO F. CRAIG, *chairman, American Telephone & Telegraph Co.*

Rural Protection
MEANS
COOK PROTECTION
WITH SUTTLE SERVICE

RDW Tap

A logical and economical method of connecting subscriber drops to rural distribution wire running straight through the Cook RDW TAP.

This unit provides a low-cost maintenance test point, and additional drops can be installed without opening splices or installing additional equipment. Size range in 6, 11 and 16 pair capacities.

Protection is optional but can be added later on a pair by pair basis with Cook Minigap arresters.

Catalog No. 352-1610

POWER CROSS PROTECTORS

5 CIRCUIT

This heavy duty arrester has been developed for telephone protection when there is a joint occupancy of poles by communication and power circuits. It provides a single assembly for 5 circuits requiring only one ground wire. The pigtail leads are precut to correct lengths for convenient installation. Catalog No. 501-50

SINGLE CIRCUIT

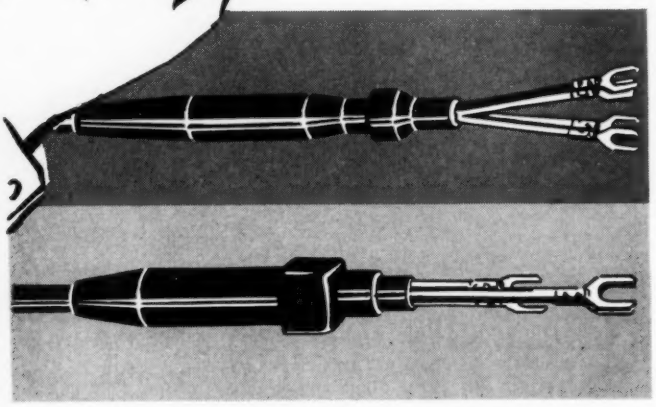
The miniature member of the family is also used in the event of contact between the power and communication circuits, in addition to furnishing considerable protection from lightning damage. This protector is furnished with alloy cover, a bracket for mounting and 3 copper wire leads.

Catalog No. 501-40

SUTTLE
EQUIPMENT COMPANY
LAWRENCEVILLE ILLINOIS

a good installation calls for a good cord

COMMERCIAL
TELEPHONE CORDS
are made better to last longer



No matter what the installation may be, there's a Commercial Cord to fit it . . . made from the best materials obtainable, to guarantee lasting durability and efficient voice transmission. Select them in the jacket that best suits your requirements:

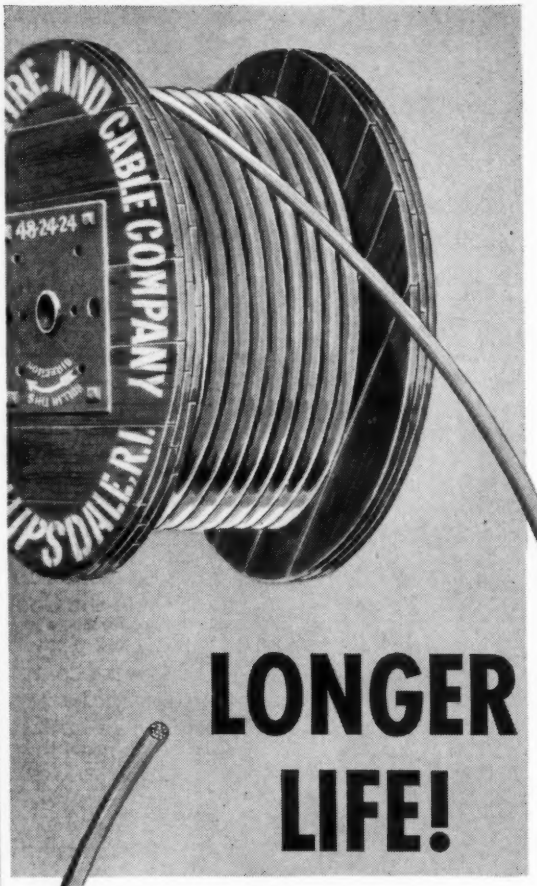
- **NYLON**
- **NEOPRENE**
- **MERCERIZED COTTON**

- switchboard cords with or without plugs;
- instrument cords; operator's cords;
- retractable handset cords (Neoprene only)

Write for a complete catalog, samples and prices.

COMMERCIAL CORD
& SUPPLY CO., INC.
CLIFTON SPRINGS, N. Y.
Phone: Howard 2-5111

QUALITY CORDS FOR ALL MAKES AND TYPES OF TELEPHONE INSTRUMENTS



LONGER LIFE!

When you talk about Kennecott lead-alloy sheathed cable, longer life REALLY MEANS SOMETHING! It means retention of full electrical properties over the *entire* long, long life of the cable. That's because every component that goes into Kennecott Telephone Cable—from copper conductor to superior, uniformly strong "Young Process" lead sheath—is checked and tested. Flaws, imperfections and inferior materials are ruthlessly eliminated. Get complete information on Kennecott Telephone Cable from the Chase sales office near you.

IT'S KENNECOTT TELEPHONE CABLE

INDEPENDENT

CHASE BRASS & COPPER CO., WATERBURY 20, CONN.
DISTRIBUTOR FOR

KENNECOTT WIRE & CABLE CO.
SUBSIDIARIES OF KENNECOTT COPPER CORPORATION

CHASE WAREHOUSES and OFFICES:

Atlanta	Cincinnati	Grand Rapids	Milwaukee	New Orleans	St. Louis
Baltimore	Cleveland	Houston	Minneapolis	Philadelphia	San Francisco
Boston	Dallas	Indianapolis	Newark	Pittsburgh	Seattle
Charlotte	Denver	Kansas City, Mo.	New York	Providence	Waterbury
Chicago	Detroit	Los Angeles	(Maspeth, L. I.)	Rochester	

TELEPHONE ACCOUNTING

Continued from page 66

lished less comprehensive systems for the smaller companies.

Early Accounting

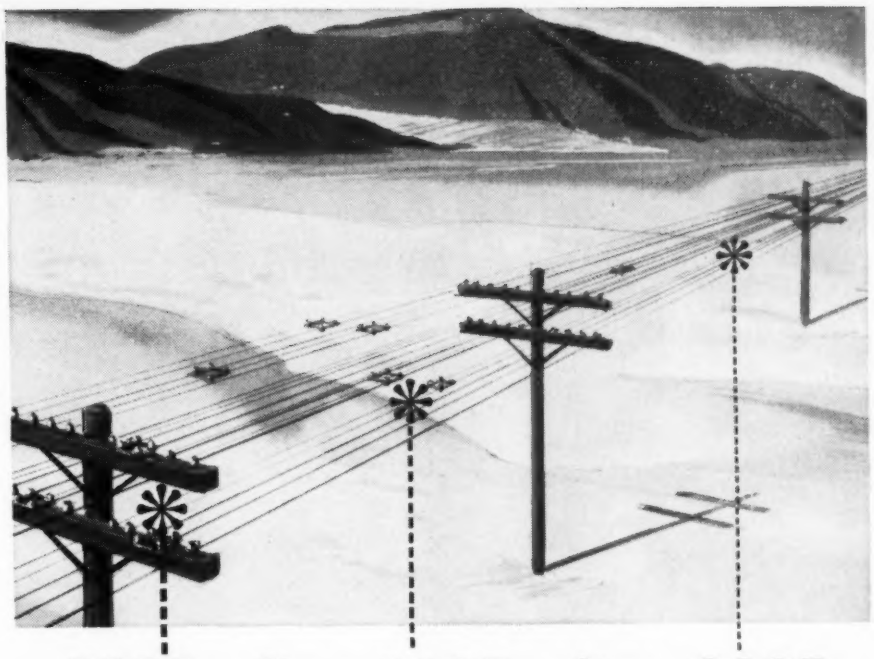
While it is generally recognized that a Uniform System of Accounts can provide classifications for the various kinds and types of expenditures and revenues, there is a vast difference between a "Uniform System of Accounts" and a "Uniform System of Accounting."

The difference was recognized early by the Independent industry and in 1926 the United States Independent Telephone Association (USITA) issued a pamphlet entitled "Uniform System of Accounting for Fixed Capital, Maintenance and Depreciation, Applicable to Class A and B Telephone Companies."

The booklet stated that experience had shown that the numerous companies, generally, had at that time little difficulty in taking care of the Revenue, General Ledger and Expense Accounts such as Commercial, Traffic, and General, but that great difficulty concerning the handling of debits and credits to the Construction, Maintenance and Depreciation Accounts had become evident. The system of accounts left certain items to the discretion or judgment of the operating company and various interpretations concerning the proper handling of replacements of minor or short-lived parts, ordinary repairs, extraordinary repairs, depreciation and casualty costs. The USITA urged the adoption by all companies of a uniform list of units as a dividing line between depreciation and maintenance and uniform practices covering charges to construction and depreciation as well as expense accounts.

Uniform accounting practices were held necessary to make valid comparisons of operating results between companies and between operating units within companies. Since the actual annual rate of depreciation for any class of property is determinable only by the historical study of plant mortality, uniform and consistent accounting practices are essential to the development of the data necessary for such studies.

The USITA booklet contained illustrations of time and material reports, summary forms, unit records and suggestions for a well-integrated plant accounting system. It is interesting to note today the emphasis placed on consistent and accurate time and material reporting and the association of costs with the units of property constructed



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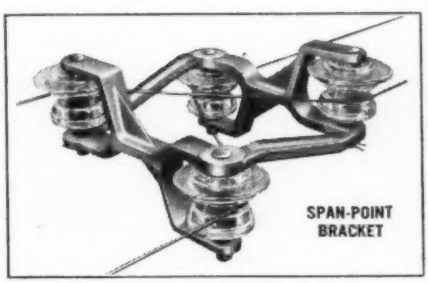

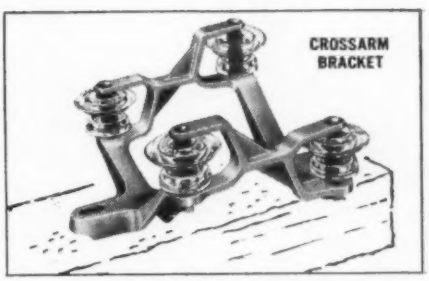

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or removed. Field codes were recommended for use by the larger companies at this time to aid in segregating costs of specific work operations and to distinguish between construction, retirements, extraordinary repairs, ordinary repairs and toll plant.

At this early date the association recommended that the extraordinary repair account be used only for major casualties, and that the depreciation rates be designed to cover ordinary losses in the life of the telephone plant due to minor casualties. A work order system for Estimate Accounting was recommended.

The methods and procedures used by the industry in accounting for revenues have also undergone interesting changes and transitions. A great volume of detail is involved in processing customers' bills for services rendered. The original approach of listing each subscriber in telephone number order in massive ledgers with columns for local service charges, toll charges, and miscellaneous other charges for each month has progressed to various forms of so-called "stub accounting" procedures and, in more recent years, to mechanical punched card and punched tape procedures. The increased use of the service and increased toll volumes have continuously required vigilant review of existing procedures to reduce the cost of clerical effort.

Original Cost Accounting

"Original Cost" accounting as applied to telephone plant was prescribed by the FCC in the 1936 Uniform System of Accounts. Numerous changes were also made in account titles, numbers, and classifications of the system of accounts, however, the prescribed accounting remained essentially unchanged from the former ICC system of accounts. It should be pointed out, however, that the former ICC had jurisdiction over only the *interstate* aspects of the telephone industry and was principally concerned with jurisdiction over *interstate* toll rates. The authority of the FCC, however, was extended to the books and records of all subject companies and since Jan. 1, 1937, all FCC companies have been required to keep their books and records as required by the commission under its Uniform System of Accounts. One of its basic tenets requires the plant accounts to be maintained on an original cost basis. The various state commissions retain regulatory authority over intrastate rates and each has prescribed by appropriate legislation, valuation and rate-making procedures.

Accounting Responsibilities

The problems and principles of telephone accounting have changed little

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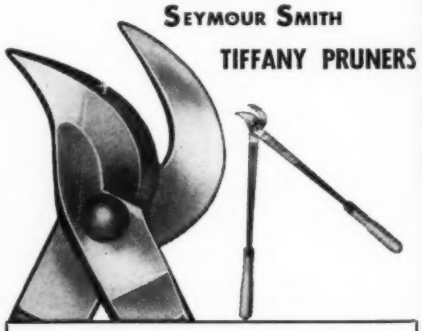

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through the years. It is true, however, that due to the rapid and tremendous increase in the demands for service since World War II, the problems and responsibilities of the accountant have undergone wide changes. The accelerated construction programs, the problem of adequate rates covering increased investment, the economic value of the dollar, increased use of toll facilities and an adequate return on toll plant, expansion of personnel requirements, public relations activity, employe relations, merchandising and sales activities, changes in an already complicated state and federal tax structure, and many other changes affecting the tempo of day-to-day transactions, have had to be absorbed and integrated into accounting systems. The maze of clerical work and the complexity of clerical functions resulting from such accelerated activities have affected the methods and procedures as applied by the Accounting Department.

Mechanization, Simplification

Mechanical means of processing much of the detail volume of data flowing from the operating departments to the Accounting Department have been developed. Subscriber billing, payroll disbursements, labor distribution, voucher distribution, material used and plant retirement details, service order processing, material and supply controls, clearing account and overhead distributions, detail and general ledger summaries have been successfully applied to punched card or mechanical processing procedures.

In the design of automatic or dial type equipment, telephone engineers have, for many years, faced the problem of determining the essential functions to be performed by the equipment under development. This same problem faces the telephone accountant. A whole new field of endeavor appears in the application of mechanical punched card and electronic data processing equipment to the needs of communication management personnel. The function of the accountant, whose primary responsibility is to provide management with the facts of operation, is not undergoing change. He should, however, place himself in a position to assist management by providing essential information concerning operations which heretofore have not been available due to the limitations of manual clerical operations.

Punched card and electronic office equipment now available should provide the avenue to improved results embodying unlimited savings in the cost of operations by combining work functions of a statistical nature now performed throughout the company or-

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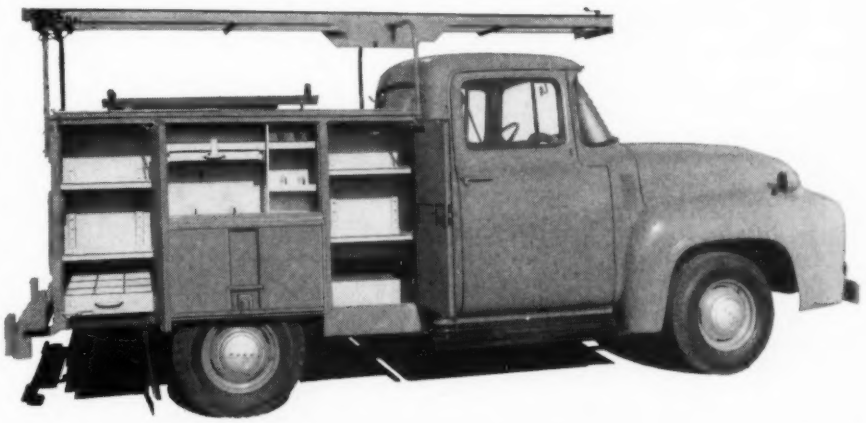

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Write for Bulletin 4B4

Engineering Representatives in Principal Cities

Signal Engineering & Mfg. Co., has changed its name to

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ganization under one central bureau. Duplication of effort and the maintenance of numerous departmental records should be eliminated and the functions combined into one mechanical processing available to all departments as a company record. Departmental preparation and review of statistical records without relation to associated processes performed by other departments has limited value and tends to be exceedingly expensive.

The Federal Communications Commission by order issued during September, 1956, made a forward step toward accounting simplification in the handling of station apparatus and station connections. A major change in accounting procedures normally carries with it a considerable volume of additional work associated with revising instructions for accounting personnel, outlining to plant people new reporting methods, developing proper depreciation accruals and establishing the details of the new procedures to the extent that questions are raised to the effect, "Did you say simplified?". However, a studied review of this change should reveal many areas where simplification has occurred. Much detailed reporting on the part of plant personnel can be eliminated and simplified and the processing of station apparatus and station connection materials used and removed can be eliminated in the accounting process. A basic advantage and simplification can occur in accumulating data from one basic document covering station movement and changes in the subscriber's station wiring.

The cost of clerical effort in the editing, recording, and balancing of numerous detailed transactions inherent to the telephone industry, together with accompanying supervisory costs and the preparation of the sundry reports, surveys and statistical analysis of the results, has become such a financial burden to the industry that serious consideration and review must be given to existing and traditional methods of accumulating data concerning investment and operating results. Investment costs per item for mass property accounts might well be determined on a scientific sampling basis. A statistician familiar with telephone plant should determine the size and design of the sample consistent with the type review under consideration. Labor costs might be distributed, based on broad-gauge engineered costs of the various plant components rather than detailed code reporting by construction forces. The application of numerous statistical and sampling techniques appear feasible to an industry such as the telephone industry where we are

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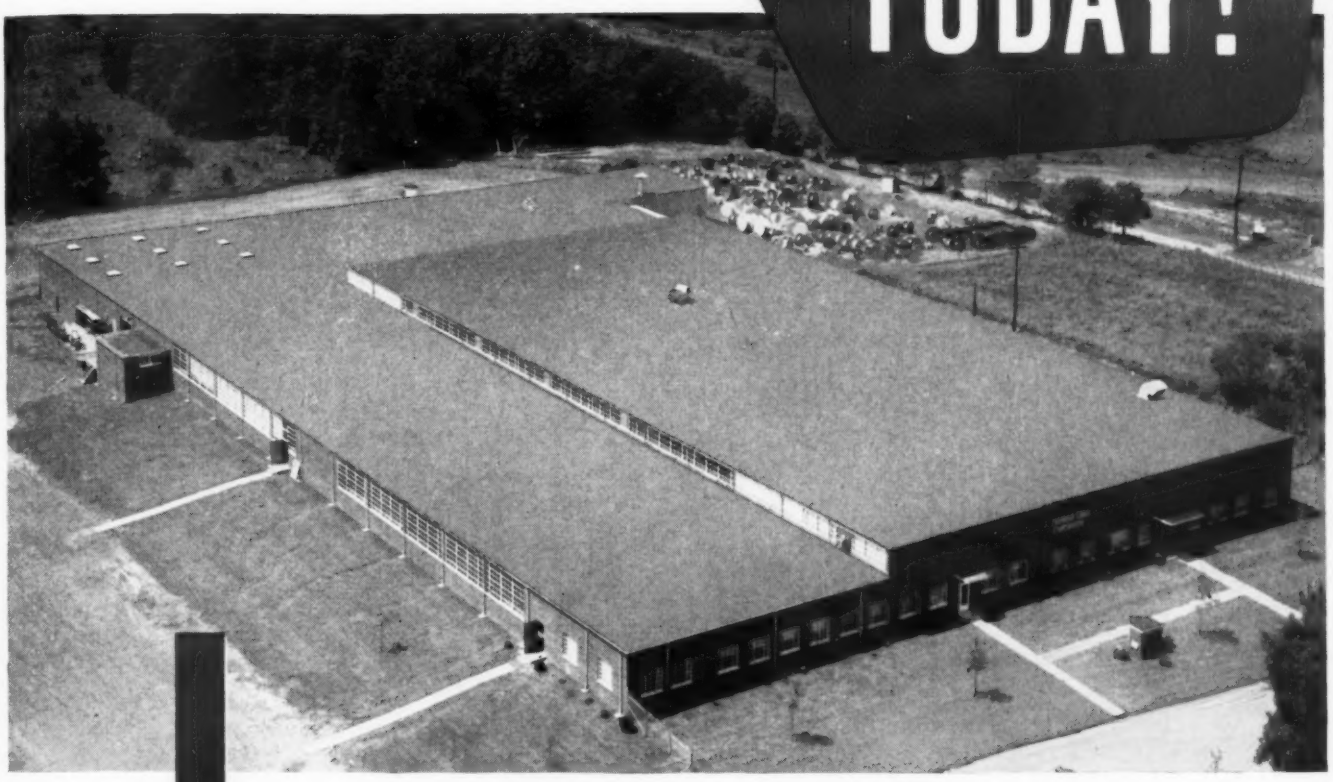

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In just three years, Superior Cable Corporation has more than tripled the size of its plant, greatly increased research, development and engineering facilities and production capacity.

On the occasion of this 60th Anniversary of Independent Telephony, Superior Cable Corporation congratulates the industry and expresses its thanks to those independent telephone companies who have helped to make Superior outstanding in the development and manufacture of plastic insulated and sheathed cables.

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continuously dealing with large numbers or quantities of similar items.

Further simplification also appears possible in adjustments and changes in the Uniform System of Accounts. For example, Account 207, Right-of-Way, might well be combined with and made a part of the Pole Line and Underground Conduit Accounts. It also appears that after adoption of the changes regarding the so-called "cradle-to-grave" station accounting requirements that the nature of Account 234, Large Private Branch Exchanges, and Account 221, Central Office Equipment, are so closely associated that the two accounts might well be combined at some future date. We appreciate that equipment chargeable to Account 234 would generally be located on subscribers' premises instead of in company buildings, however, we see few complications in this regard, as some form of location record would undoubtedly be maintained showing this information.

Consideration should also be given to segregations to reflect investment in toll equipment in contrast to equipment used wholly for local traffic. Other changes and suggestions have been made concerning the system of accounts primarily directed toward simplifying plant reporting and reducing the clerical effort and cost incident thereto. Much study and developmental work will be devoted to this end over the next decade.

Semantics and the language difficulty have played no small part in the history and development of accounting. Telephone accounting and the economics of the industry have most certainly enjoyed the full flavor of this most formidable obstacle.

Accounting is obviously not a science. On a professional level, it is at best a highly developed art. As a continuously useful art, it must be made to allow for that progressive variation of procedure necessary to match alternatively chosen policies to the desired economic ends.

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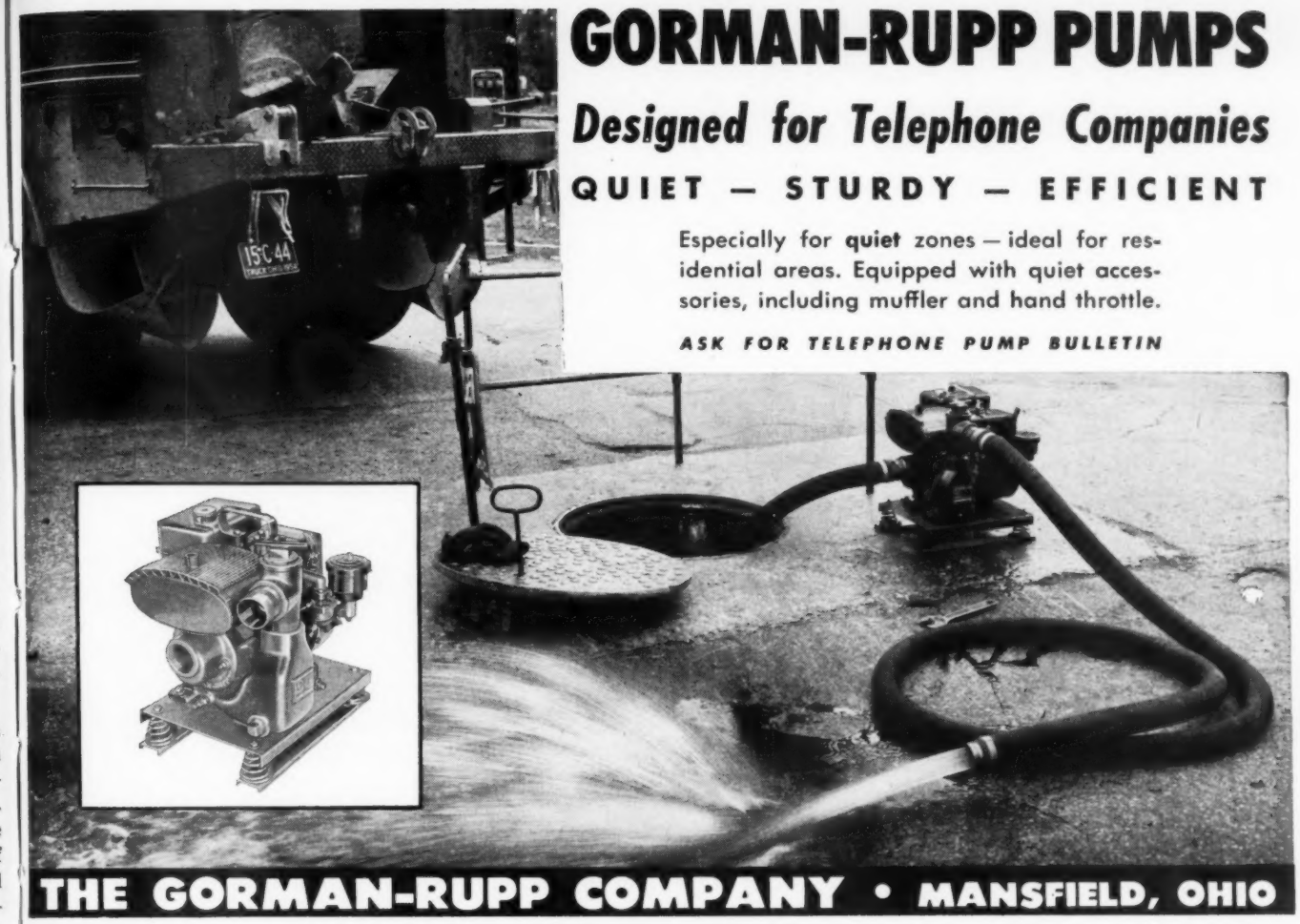

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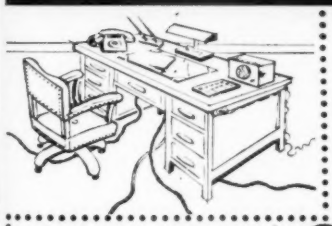

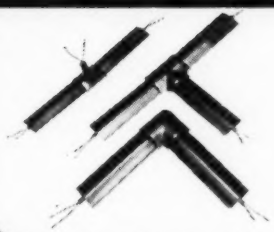

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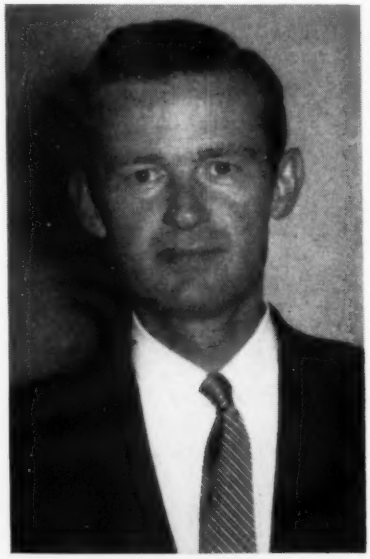
Ohio Independent Announces Two Appointments

Col. William C. Henry, president and general manager of Northern Ohio Telephone Co., Bellevue, O., has announced the appointment of Charles A. Henry as general traffic superintendent,

C. A. HENRY

effective Sept. 16. Mr. Henry's offices will be at the Bellevue headquarters. John Woodward has been named plant engineer and will take over the duties formerly performed by Mr. Henry.



JOHN WOODWARD

Mr. Henry joined the company upon graduation from Wittenberg College, and was assigned to Bowling Green as assistant to District Manager H. L. Favri. He was next assigned as plant engineer attached to the Bellevue offices, and early this year was named special engineer, before being named general traffic superintendent.

Mr. Woodward, upon completing his education at Denison University, was associated with the engineering department of North Electric Co., then spent

four years in the Air Corps. He is a son of the late F. E. Woodward who was general commercial superintendent of the company for more than 20 years.

A.W.P.A. Issues 1956 Wood Preserving Statistics

Wood preservation statistics as compiled by Gordon D. Merrick of the United States Forest Service show an increase of 4 per cent in the amount of wood given preservative or fire-retardant treatment in 1956 in comparison with that treated during 1955, according to W. W. Barger, president of the American Wood-Preservers' Association (A.W.P.A.) and chief inspector, tie and timber treating dept. of the Atchison, Topeka & Santa Fe Railway Co., Topeka, Kan.

The official 1956 report, prepared by Mr. Merrick in cooperation with AWPA, has just been released. Its voluminous statistics represent the output of 325 wood-preserving plants (eight more than reported in 1955) of which 229 were pressure-treating plants, 73 non-pressure, and 23 equipped for both pressure and non-pressure processes. Wood treated by these plants is protected against decay, termites, and other insects and marine borers, or is made fire resistant.

The total volume of wood treated in 1956 was 257.9 million cubic feet, of which about 95 per cent was treated by pressure processes, about the same proportion as in 1955. Increases were noted in the production of piles (21 per cent), poles (15 per cent), switch ties (11 per cent), crossarms (8 per cent), and lumber and timbers (4 per cent.

Use of straight distillate coal tar creosote increased 4 per cent; use of creosote-coal tar solution increased less than 1 per cent; while use of creosote-petroleum solution decreased about 3 per cent. Seventy-nine per cent of all material treated was treated with creosote or a creosote solution. The use of pentachlorophenol increased about 25 per cent, with petroleum-pentachlorophenol being used for 14 per cent of the total material treated.

In 1956 the industry consumed a total of 223,894,641 gallons of liquid preservatives and 22,593,769 pounds of solid preservatives.

Two new and 12 revised standards for the "AWPA Manual of Recommended Practice" recently have been issued, according to Mr. Barger.

The manual is a technical handbook of value to wood-preservative manufacturers, producers and users of treated wood products, inspectors, chemists, etc.

The new standards have been sent

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A combination of telephonic transmission qualities and physical strength never before attained in a galvanized steel telephone wire now is available in **Crapo** HTL-195. This new, extra-high tensile line wire with superior electrical characteristics makes possible spans to 600 feet in Heavy, 650 feet in Medium and 700 feet in Light Loading Districts. The result: up to 40% reduction in the number of pole structures required with marked savings in materials and in construction costs.

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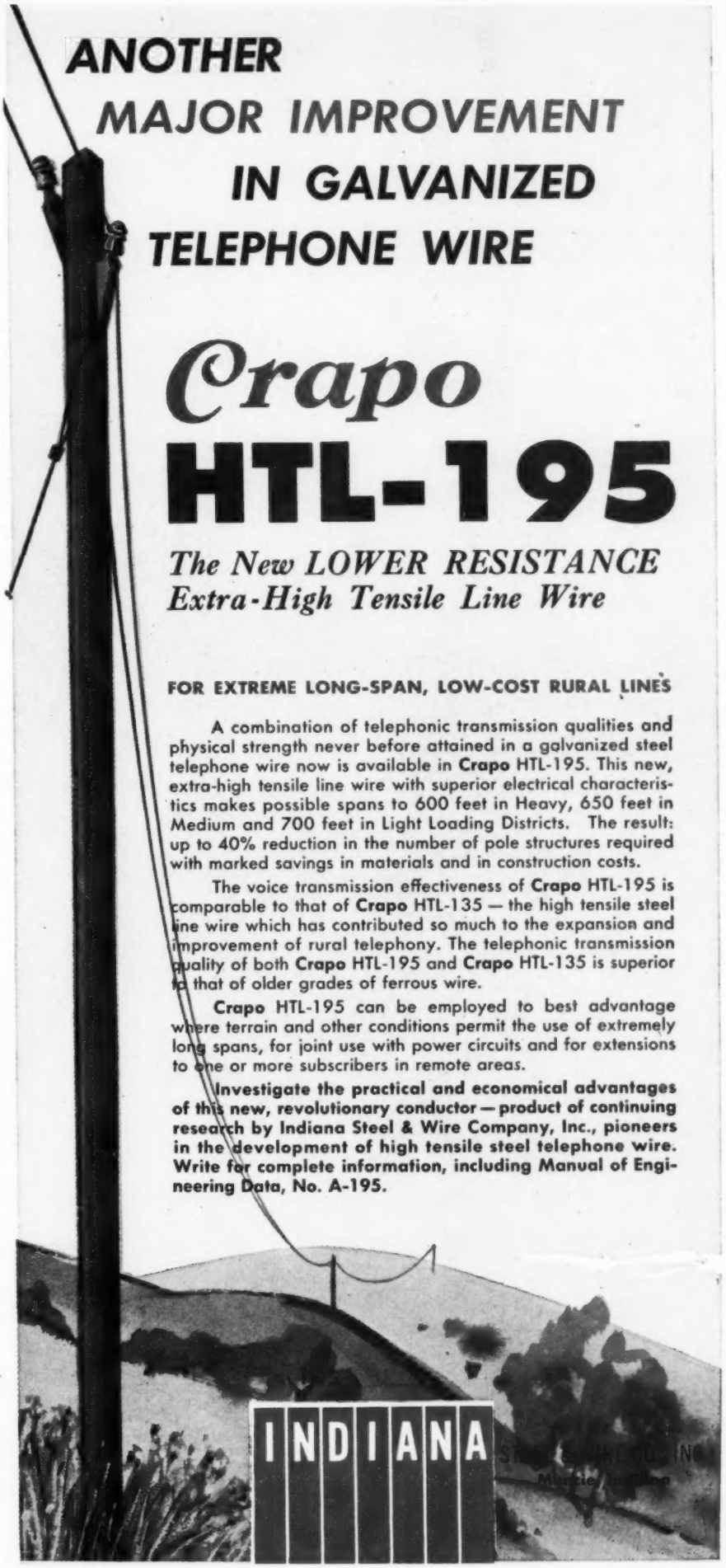
Investigate the practical and economical advantages of this new, revolutionary conductor — product of continuing research by Indiana Steel & Wire Company, Inc., pioneers in the development of high tensile steel telephone wire. Write for complete information, including Manual of Engineering Data, No. A-195.



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to all those who have purchased a copy of the AWPA manual. The revisions, or partial revisions, include in some cases only editorial changes, but most of the items involve new or revised specifications approved at the 1957 annual meeting of the association, which have subsequently been confirmed by vote on a letter ballot sent to all (approximately 1,800) members of AWPA.

Of particular note is the issuance for the first time of standards covering the requirements for preservative treatment of crossties by both pressure and non-pressure processes. Other changes include:

Addition of pentachlorophenol in standards for treatment of Pacific Coast Douglas fir, western hemlock, western larch, Intermountain Douglas fir, oak, and black or red gum lumber and timbers; Pacific Coast Douglas fir piles and posts; and western larch, Intermountain Douglas fir, and western red cedar poles.

Revision of the standard method of distillation of creosote.

Revision of the percentage requirements in the composition of acid copper chromate (Celcure®) and in the composition of tanalith (Wolman Salts®).

The AWPA manual is available at the association headquarters, 839 Seventeenth St., NW., Washington 6, D. C.; price $8.50 plus postage. For those whose manual has become crowded with the addition of the several new standards in recent years, an expanded ring binder capable of holding all of the current standards as well as new standards that may be issued for a number of years to come, will be forwarded promptly by the headquarters office upon receipt of $2.50.

Charity Grows

Under the apt heading, "Benevolence Unlimited," *The Reporter* discloses that there are well over 6,000 benevolent endowments in this country, as against only 600 a decade ago.

Defends Free Market

"[There is] a dangerous trend against the free market principle and toward the welfare state idea. We must be against it because we are for something far more progressive, far more liberal, far more equitable, and far more beneficial to the American people as a whole than any welfare state idea."—JOHN S. COLEMAN, *former president, Chamber of Commerce of the United States.*

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trolled thermo-nuclear reaction is as limitless as the oceans of the world."—ROY H. GLOVER, *chairman of the board, Anaconda Co.*

Maine Technical School Offers Telephony

At the Maine Vocational-Technical Institute, South Portland, Me., there has evolved over the past few years a six-week unit in telephony within the electrical Course. The two-year electrical course provides the usual broad general coverage of the field. However, when increasing numbers of graduates trend toward a special field, the institute attempts to provide more specialization in that field.

In recent years, M.V.T.I. graduates have gone in relatively large numbers into technical positions with telephone companies and manufacturers of telephone equipment, the institute reports. Increased interest of students in the field of telephony has led to an accent which, the institute believes, develops graduates more valuable to the telephone industry. As a result, recruitment of graduates in this field of work has accelerated.

This development began several years ago when a simple manually operated switchboard was established. The Automatic Electric Co. donated a single selector to the school. This was used simply for demonstration.

Still later, North Electric Co. of Galion, Ohio, arranged for M.V.T.I. to secure a 100-line dial switchboard. This led to a campus telephone system involving 25 buildings within 35 acres. As a training procedure, it proved valuable. Older type telephones were converted to dial. Installation was practiced. The school telephone system works fully as well as its commercial counterpart.

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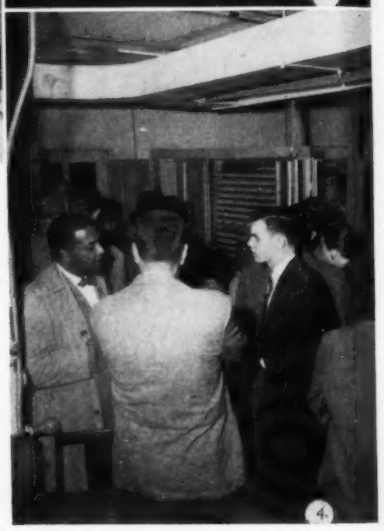

Scenes at dedication of one of the automatic telephone systems installed at Maine Vocational-Technical Institute. The system is used for demonstration in the institute's six-week course in telephony. Photos: (1) Arthur Fisher of North Electric Co. makes one of the first calls. (2) Automatic switchboard located in the industrial electricity building. (3) Ceremonies follow the dedication banquet. (4) Guests inspect the new switchboard.

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Telegraph Co. made it possible to secure another board, which is being used for demonstration and parts replacement. More recently, an Independent telephone company in Damariscotta, Me., donated another 100-line board. This was connected to the various bench panels in the electrical laboratory so that circuitry could be practiced.

As one phase of the electricity course, telephony provides a medium for application of electrical principles and theory. Nothing had to be taken out of the electrical course to introduce telephony. It involved only a reorganization of teaching procedures. The instructors developing this program are Harold W. Anderson and Romulus L. Graves.

The principle established works also in other courses. Advisory committees from the field of work concerned point out areas of shortage in trained men. The course is adapted to industrial needs—particularly of the state of Maine. A flexible program keeps the school from becoming static, and tends to keep it alert to changing conditions.

Italy-Spain Over-Horizon Link Established by IT&T

The first direct commercial telephone service between Italy and Spain was inaugurated on Sept. 4 over the world's first over-the-horizon microwave link to be put into regular commercial service, spanning the 230-mile gap between the Mediterranean Sea islands of Sardinia and Minorca.

Messages of greeting and congratulation were exchanged between His Excellency Camilo Alonso, Minister of Interior, speaking from Madrid, and His Excellency Bernardo Mattarella, Minister of Telecommunication, speaking from Rome. Other officials participating in the inaugural ceremonies, which took place at noon, Rome time, included Don Jose Maria Clara, managing director of the Spanish Telephone Co., and Dr. Albinod Antinori, inspector general of telecommunications for Italy, under whose leadership the project was initiated and carried out.

The supply and installation of the equipment, as well as the propagation tests that proved feasibility of the O/H system, were made by IT&T (Inter-

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national Telephone & Telegraph Corp.), and its associated companies FACE (Fabbrica Apparecchiature per Comunicazioni Elettriche Standard) and SIRTI (Societa Italiana Reti Telefoniche Interurbane) in Milan, SESA (Standard Electrica, S. A.) in Madrid.

The technical direction of the project was carried out by IT&T's central research laboratory in the United States, FTL (Federal Telecommunication Laboratories), Nutley, N. J. This is the first of a number of such systems being installed by IT&T in various parts of the world.

The terminals of the O/H link are located near Mahon, the principal town of Minorca, and Oristano on the west coast of Sardinia. Channels for six simultaneous telephone calls are available, with provision for 30 more, as required. Open-wire carrier or coaxial cable systems and radio link facilities furnish the necessary connections with the national telephone networks.

Each terminal includes two transmitters for parallel operations and two receivers with arrangements for combining their outputs in order to minimize the effect of atmospheric disturbances. The parabolic antennas are located 20 feet above ground and are 65 feet in diameter.

Intensive research has resulted in the techniques of tropospheric forward-scatter, whereby microwave communication can be reliably established between points as far distant as 350 miles.

In 1955 work started on a link between Cuba and Florida whose bandwidth is sufficient to permit the transmission of both television and telephone simultaneously. This link, jointly and equally financed by IT&T and AT&T, is also scheduled for inauguration in September of this year.

The troposphere is a layer of the gaseous blanket that envelops the earth. It lies about 10 miles about the earth's surface and, unlike an optical mirror, is not a sharply defined surface that remains fixed in space but rather a broad region from which electromagnetic waves are scattered in an irregular pattern that varies from moment to moment.

In general, a single transmission over an O/H microwave path is too greatly affected by short-term fading to be of adequate commercial value. But by operating two or more such transmissions in parallel and by selecting the strongest signal at each moment at the receiving end, commercial reliability can be attained.

This is done either by sending and receiving two single transmissions between two pairs of antennas (the method used in the Cuba-Florida link) or by cross-polarized transmissions at different frequencies between single antennas (the method used in the Sardinia-Minorca link). The reliability of the resulting signal is greater than that of many other radio techniques.

The effective radiated power in O/H transmission must, however, be great. Thus, not only are transmitters of maximum ratings employed but also extremely high-gain antennas to concentrate the radiated waves into thin pencil-like beams that are aimed towards the receiving antennas, which are out of sight around the bulge of the earth.

The scattering technique, not exclusively confined to use with the tropospheric layer, promises important changes in radio communication, IT&T stated.

Protecting Free Expression

"Outlawing of the so-called Communist party is a proper denial of the uses of our institutional machinery for conspiracy against it, and as a technique for furthering activities not dependent or reliant on its lasting use. Such outlawry is not a denial of free expression." — EDITORIAL STATEMENT, The (Baltimore) Sun.

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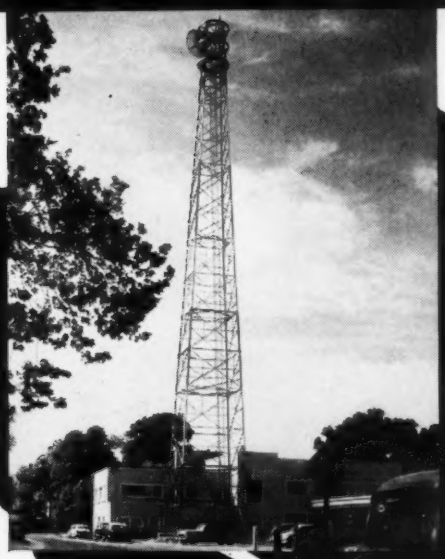

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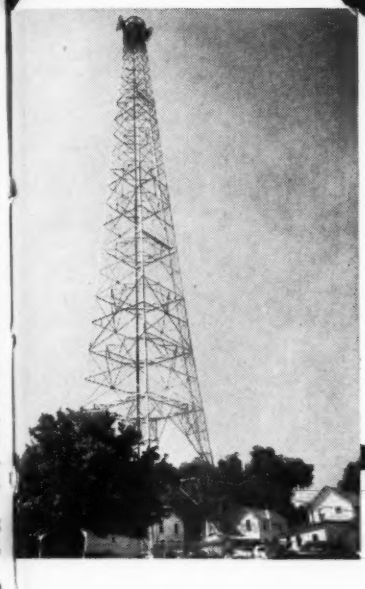

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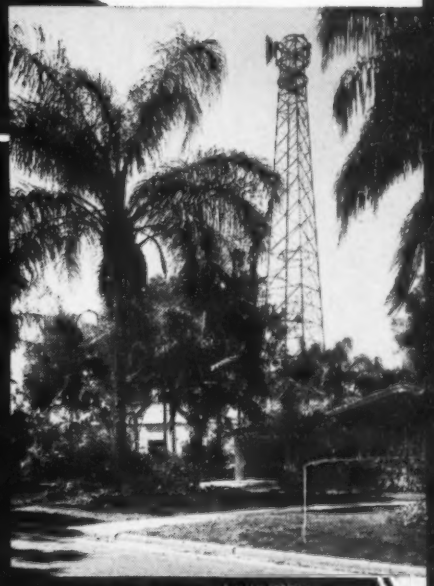

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